

AIR COMPLIANCE ANALYSIS SUMMARY SHEET

COMPANY/FACILITY: Duke Energy Carolinas, LLC – Anderson
County Combined Cycle Station
LOCATION (City, County): Anderson (Anderson)
PERMIT NUMBER: 0200-0310
REQUEST: PSD Construction Permit

DATE: DRAFT

REVIEWED BY: SWS

ANALYSIS:	<u> X </u>	AMBIENT AIR QUALITY STANDARDS	<u> X </u>	PSD INCREMENT
	<u> </u>	TOXIC AIR POLLUTANTS	<u> X </u>	DE MINIMIS
	<u> X </u>	EXEMPTION	<u> </u>	DEFERRAL
OTHER:	<u> </u>	EXPEDITED	<u> N </u>	COLLOCATED (Y or N)

PROJECT DESCRIPTION: Duke Energy Carolinas, LLC proposes to construct a combined-cycle combustion turbine facility near (just south of) the city of Anderson. The main component of the power block will consist of two combustion turbines, two heat recovery steam generators and one steam turbine. The combustion turbines will fire natural gas with No.2 fuel oil (ultra-low sulfur diesel) as backup. Additional equipment will include an auxiliary natural gas-fired boiler, emergency diesel-fired generator, emergency diesel-fired firewater pump engine, two natural gas-fired dew point heaters, two diesel fuel storage tanks, and a compressor station. The compressor station will be electric-driven and will include a natural gas-fired emergency generator engine and 24 small natural gas-fired heaters.

SUMMARY OF MODELING ANALYSIS & RESULTS: A modeling analysis using the AERMOD and CALPUFF programs was provided by ALL4, LLC. The facility will be in Anderson County. This project will be considered major under Standard 7 Prevention of Significant Deterioration (PSD). When a "Standard" is mentioned, it refers to the applicable section of South Carolina Regulation 61-62.5, Standards 1 through 8. When "the facility" is used in this summary, it refers to the Duke Energy - Anderson facility. This is the initial compliance summary for this facility and is a complete compliance summary.

For a major facility, PSD regulations require an applicant to analyze the impact from the construction of the proposed new source(s) on the following areas:

1. Compliance with the National Ambient Air Quality Standards (NAAQS)
2. Compliance with the PSD Increments
3. Significant impact on PSD Class I Areas, including Class I PSD increments
4. Impairments to visibility, soil, and vegetation
5. Air Quality impact of general growth associated with the source

All major sources proposing new construction or construction modifications in South Carolina (SC) are also required to demonstrate that their facility will comply with South Carolina Regulation 61-62.5 Standards 2 (AAQS), 7 (Class II PSD Increments) and 8 (Air Toxics), as applicable.

General Results

The compliance demonstration indicates the following:

- a) For PSD Class II areas, there will be no exceedance of the NAAQS or Increments, and no adverse effect on growth, soils, vegetation or visibility is indicated.

- b) For PSD Class I areas, there will be no exceedance of Class I Significant impact levels at any of the five Class I areas within 300 km of the facility. A screening analysis indicates there will also be no adverse effects on visibility, vegetation, or soils in any of those same Class I areas.
- c) There will be no exceedance of SC ambient air quality standards.

General Analysis Notes

1. Modeling Scenarios – Modeling for each pollutant and averaging period for each compliance exercise was conducted for one or more of the following combustion turbines (CT) operating scenarios: design load, worst-case, bypass and startup/shutdown. The design load scenario was used for all averaging periods; the worst-case scenario was added for all short-term (24 hours or less) averaging periods; the bypass scenario was added for just the NO₂/1-hour, CO/1-hour and CO/8-hour modeling; and the startup/shutdown scenario was done for just NO₂/1-hour. The different scenarios represent varying emission rates, exit temperatures or exit velocities for the CTs. For each modeling exercise, the maximum result among the different scenarios, and facility vs. BAQ model runs, is listed in this summary. The scenarios are briefly described below. Please see the facility application dated April 2026 for more details.

a) Design load – This scenario represents the most typical operating parameters for the CTs (100% load with duct burners at average ambient conditions and maximum annual emissions).

b) Worst-Case Load – An initial modeling analysis was conducted to determine the worst-case operational conditions of the CTs for all short-term (24-hours or less) averaging periods. This consisted of full and partial load emissions (ranging from 48.5-75% load) for natural gas and fuel oil, with and without duct burners and seven ambient temperatures. Startup and shutdown conditions were also evaluated. In total, 45 load scenarios were evaluated for each pollutant and short-term averaging period. The resultant worst-case exit temperature and velocity for each pollutant are shown in Table F.6 in this summary and were used as appropriate in the compliance modeling.

c) Bypass - This scenario represents the use of CT bypass stacks when the main stacks are unavailable, which may occur up to 500 hours per turbine per year. CO and NO_x emissions differ along with stack characteristics compared to normal stack operation. Thus, this scenario is used only for NO₂/1-hour, CO/1-hour, and CO/8-hour modeling.

d) Startup / Shutdown – An additional startup/shutdown (SUSD) scenario was included for NO₂/1-hour Class II SIL and NAAQS modeling. This scenario addresses intermittent SUSD emissions by annualizing the maximum 1-hour emission rate expected across the four SUSD scenarios (cold, warm and hot starts, and shutdown).

2. Meteorological data used in AERMOD – Both the facility and BAQ AERMOD analyses used 2015-2019 data from the Anderson (SC) Regional Airport prepared by BAQ. The AERMET version used (v24142) was the EPA-approved version at the time when the application was submitted.

3. Ozone Limiting Method (OLM) for NO₂ modeling – The OLM was used to manage conversion of NO_x to NO₂ in all NO₂ AERMOD modeling runs. Ozone data from the Big Creek monitor for 2015-2019 and in-stack ratios (ISR; NO₂/NO_x) from the EPA ISR database were used as input.

4. Base elevation of facility sources and buildings – These were set to 822 feet (250.55 meters), the final planned grade elevation of the site (i.e., the elevations were not extracted using AERMAP).

This summary sheet is divided into the following sections:

Section A – PSD Significant Determination

Section B – PSD Class II Modeling Analysis (Preliminary and Full Impact)

Section C – PSD Additional Impact Analysis (Growth, Soils & Vegetation, and Visibility)

Section D – PSD Class I Impact Analysis

Section E – SC Facility-wide Compliance Demonstration

Section F – Facility Emission Rates and Stack Parameters

Section G – PSD Appendix – Secondary Pollutant Impact Information

Acronyms/Abbreviations

AAQS = Ambient Air Quality Standards

AQRV = Air Quality Related Values

BAQ = SCDES Bureau of Air Quality

CO = Carbon Monoxide

EPA = Environmental Protection Agency

FLAG = Federal Land Managers' AQRV Workgroup

FLM = Federal Land Manager

H₂SO₄ = Sulfuric Acid Mist

km = kilometer

lb/hr = pounds per hour

m/s = meters per second

MERPs = Modeled Emission Rates for Precursors

Met = Meteorological

MM = mesoscale meteorological data (i.e., MM4 or MM5)

MSBD = minor source baseline date

NAAQS = National Ambient Air Quality Standards

NO₂ = Nitrogen dioxide

NO_x = Oxides of Nitrogen

NP = National Park

NSR = New Source Review

NWA = National Wilderness Area

OLM = Ozone Limiting Method

Pb = Lead

PM = Particulate Matter

PM_{2.5} = Particulate Matter <2.5 microns

PM₁₀ = Particulate Matter <10 microns

ppb = parts per billion

PSD = Prevention of Significant Deterioration

SA = Screening Area

SC = South Carolina

SCDES = SC Department of Environmental Services

SER = Significant Emission Rate

SIA = Significant Impact Area

SIL = Significant Impact Level

SO₂ = Sulfur Dioxide

Standard 2, 7, or 8 = SC State Regulation 61-62.5, Standard 2, 7 or 8

TPY = Tons per year

TSP = Total Suspended Particulate

US = United States

VOC = Volatile Organic Compound

SECTION A - PSD SIGNIFICANT DETERMINATION

The facility will be a new source. Since this facility is listed in one of the 28 industrial categories defined in Standard 7, the PSD major source threshold is 100 TPY for any NSR pollutant. Each pollutant increase is compared to this PSD threshold value. If a pollutant exceeds the threshold, the facility is determined to be "major" for PSD and will require a PSD review. If one pollutant exceeds the threshold value, the remaining pollutants are then compared to the significant levels to determine which other pollutants also require a PSD review. Pollutants not exceeding the PSD significance level will not require a PSD review; however, compliance with SC State Regulation 61-62.5, Standards 2 and 8 (as applicable) must be demonstrated for these pollutants using the appropriate guidelines defined for minor sources constructing and operating air emission sources in South Carolina.

Table A.1 below lists the maximum potential emission rates for this project. Comparison of each pollutant to the respective PSD significance level indicates that TSP, PM₁₀, PM_{2.5}, SO₂, NO_x, CO, and VOC/Ozone will require a PSD review. Since Lead and Sulfuric Acid (H₂SO₄) Mist are below the significance threshold, no further PSD analysis is required for those pollutants.

Table A.1 PSD EMISSION RATES			
Pollutant	Project Emissions (TPY)	PSD Significant Emission Rate (SER) (TPY)	PSD Review Required? (Yes/No) ⁽¹⁾
TSP	276.6	25	YES ⁽²⁾
PM ₁₀	390.7	15	YES
PM _{2.5}	390.7	10	YES
SO ₂	60.0	40	YES
NO _x	629.8	40 ⁽³⁾	YES
CO	629.2	100	YES
Ozone (VOC or NO _x)	134.0 ⁽⁴⁾	40 ⁽³⁾	YES
Lead	0.02	0.6	NO
GHG (CO _{2e})	6,017,704	75,000	YES ⁽⁵⁾
H ₂ SO ₄ Mist	4.6	7	NO
1) Sources that exceed the significant threshold are required to perform an air quality impact analysis.			
2) Although TSP exceeds the PSD significance level, there is no NAAQS value for comparison.			
3) Major for VOC or NO _x is considered major for Ozone.			
4) Emissions listed are for total VOC.			
5) Although GHG (greenhouse gas) emissions exceed the PSD significance level, there is no NAAQS value for comparison. Thus, no air dispersion modeling for this pollutant is performed. This pollutant is addressed within the BACT Analysis section provided within the application.			

SECTION B - PSD CLASS II MODELING ANALYSIS

The PSD review requires pollutants, which are determined to be "major," to be evaluated by an Air Quality Impact Analysis and Additional Impacts Analysis. The Air Quality Impact Analysis consists of: 1) a Preliminary Modeling Analysis to determine which pollutants from the proposed project, at the facility only, exceed their Class II Significant Impact Level (SIL); and 2) for each pollutant that exceeds its SIL, a Full Impact Analysis that includes emissions from the facility and emissions from nearby facilities that may cause an impact in the Significant Impact Area (SIA). The Additional Impacts Analysis evaluates the impacts on soils, vegetation, and visibility.

B.1. PSD CLASS II PRELIMINARY MODELING ANALYSIS

Potential emission rates or net emission rate increases, for each pollutant determined to be significant at the facility (Table A.1), were modeled to determine: a) impacts relative to the Significant Impact Level (SIL); b) the impact area within which a Full Impact Analysis must be performed (if applicable); and c) whether or not the facility may be exempted from the ambient monitoring data requirements. Each of these three preliminary Class II analyses are discussed below.

B.1.a. SIGNIFICANT IMPACT LEVEL (SIL) ANALYSIS

Table B.1 provides the results of the SIL analysis for this project for the “major” pollutants as defined above. The maximum impact shown is the maximum modeled concentration (plus secondary impact for PM_{2.5} and just secondary impact for ozone). If the maximum impact is less than or equal to the SIL, then no further PSD analysis is required for that pollutant/averaging period.

The analysis shows the SIL was exceeded for PM₁₀, PM_{2.5}, NO₂ and CO for the averaging periods indicated. Therefore, a Full Impact analysis is required for those pollutants. No further PSD analysis is required for SO₂; however, SO₂ must be included in the Standard 2 (facility-only) compliance analysis (Section E). Ozone impact is further addressed below the table.

Table B.1						
PSD CLASS II SIGNIFICANT IMPACT LEVEL (SIL)						
Pollutant	Averaging Time	Model Used	Maximum Impact (µg/m³) ⁽¹⁾	SIL (µg/m³)	Exceeds SIL? (Yes/No)	Significant Impact Area (SIA) (km)
PM ₁₀	24-HOUR	AERMOD	18	5	Yes	2
	ANNUAL	AERMOD	1	1	No	N/A
PM _{2.5}	24-HOUR	AERMOD / MERPs	9.9 ⁽²⁾⁽⁴⁾	1.2	Yes	10
	ANNUAL	AERMOD / MERPs	0.45 ⁽³⁾⁽⁴⁾⁽⁸⁾	0.13	Yes	3
SO ₂	1-HOUR	AERMOD	2 ⁽⁵⁾	8	No	N/A
	3-HOUR	AERMOD	2	25	No	N/A
	24-HOUR	AERMOD	1	5	No	N/A
	ANNUAL	AERMOD	0	1	No	N/A
NO ₂	1-HOUR	AERMOD	140 ⁽⁵⁾⁽⁶⁾	8	Yes	23
	ANNUAL	AERMOD	7 ⁽⁶⁾	1	Yes	2
CO	1-HOUR	AERMOD	3152	2000	Yes	1
	8-HOUR	AERMOD	367	500	No	N/A
Ozone	8-HOUR	MERPs	3.6 ppb ⁽⁷⁾	1.0 ppb	Yes	N/A
1) Highest-first-high concentration except as noted otherwise						
2) Five-year average of the first-high concentrations						
3) Five-year average of the maximum annual concentrations						
4) Includes the AERMOD-modeled primary PM _{2.5} project impact and the total secondary PM _{2.5} project impact (as shown in Table G.4) using the Modeled Emission Rates for Precursors (MERPs) method. See more details in Section G.						
5) The five-year average of the daily maximum 1-hour concentrations						
6) The OLM option using 2015-19 hourly ozone data from the Big Creek monitoring station was applied.						
7) Ozone is usually not emitted directly to the atmosphere. The maximum impact includes the secondary ozone project impact (as shown in Table G.6) from NO _x and VOC precursors using the MERPs method. See more details in Section G.						
8) The BAQ modeled concentration was slightly higher than the Facility result and is listed here.						

Table B.1 PSD CLASS II SIGNIFICANT IMPACT LEVEL (SIL)						
Pollutant	Averaging Time	Model Used	Maximum Impact ($\mu\text{g}/\text{m}^3$) ⁽¹⁾	SIL ($\mu\text{g}/\text{m}^3$)	Exceeds SIL? (Yes/No)	Significant Impact Area (SIA) (km)
TSP is not considered a criteria pollutant for this analysis.						

Ozone:

The project impact calculated from secondary formation (from VOC and NO_x precursors) is greater than the ozone SIL (Table B.1). Thus, the project may have a significant impact on ozone formation, and a cumulative analysis is necessary to demonstrate that the added secondary impact will not violate the ozone NAAQS. See Section B.2.a for the NAAQS ozone analysis.

B.1.b. SIGNIFICANT IMPACT AREA (SIA) ANALYSIS

The preliminary SIL modeling analysis (results shown in Table B.1) was used to determine the Significant Impact Areas (SIA). Each SIA is a circular area with a radius extending from the source to the lesser of the following: 1) the most distant point where the Preliminary Modeling Analysis predicts a significant ambient impact will occur (greater than the SIL), or 2) a modeling receptor distance of 50 km.

The SIA is established for each pollutant and averaging period. The SIA is the area in which the NAAQS and PSD increments are evaluated using a cumulative (Full Impact) modeling analysis. All sources within the SIA and all receptors within the SIA where the project predicts a significant impact (where receptor concentrations exceed the applicable SIL) were included in the Full Impact Analyses. Other sources within the Screening Area (SA) were also included in the Full Impact Analyses, as appropriate.

B.1.c. AMBIENT BACKGROUND DATA ASSESSMENT

Significant Monitoring Concentration

Modeling significance results (impacts, from Table B.1) for PM₁₀, SO₂, NO₂, and CO are shown in Table B.2 below along with significant monitoring concentrations (SMC) for those pollutants. The impacts are the maximum modeled concentrations as noted in the table. The significant monitoring concentrations are from SC Regulation 61-62.5, Standard 7.

Table B.2 SIGNIFICANT MONITORING CONCENTRATIONS (SMC)				
Pollutant	Averaging Period	Max. Impact ($\mu\text{g}/\text{m}^3$) ⁽¹⁾	SMC ($\mu\text{g}/\text{m}^3$)	Exceeds? (Y or N)
PM ₁₀	24-Hour	18	10	Yes
SO ₂	24-Hour	1	13	No
NO ₂	Annual	7 ⁽²⁾	14	No
CO	8-Hour	368	575	No
1) Highest-first-high concentration				
2) The OLM option using 2015-2019 ozone data from the Big Creek monitoring station was applied.				

The maximum impacts for SO₂, NO₂ and CO are below the significant monitoring concentration (SMC) levels; therefore, no pre-construction monitoring is required for those pollutants. On the other hand, the PM₁₀ concentration exceeds the SMC. Section 2.4 of EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (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. Existing representative monitor data for PM₁₀, as well as PM_{2.5}, SO₂, NO₂ and CO are discussed below.

Monitor Data

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. Thus, according to the EPA document listed above, monitoring data from regional monitor sites may be used as representative background data in this case. Design value background data is summarized in Section E.

PM₁₀ - The facility has demonstrated that there is existing representative monitoring data in lieu of preconstruction monitoring for PM₁₀. The Greenville ESC monitoring site was selected to represent background concentrations for this pollutant. The most recent data available (at the time the application was submitted) is for 2022 through 2024. The monitor is located approximately 32 miles (52 km) to the north-northeast of the facility in a developed area in Greenville. The predominant wind directions at the facility (represented by wind data from the Anderson Regional Airport) are (from the) southwest and northeast. The monitor site is in a more developed area compared to the facility. Thus, data from the Greenville ESC monitor are likely conservative for this project.

PM_{2.5} - The Hillcrest Middle School monitor, located approximately 32 miles (52 km) to the northeast of the project site, was selected as the most representative monitor. This monitor was chosen over the Greenville ESC monitor, which is roughly the same distance from the project site. This is because the Hillcrest monitor is in an area that is less developed than the area around the Greenville ESC monitor, and more similarly developed to the area around the project site. Thus, the Hillcrest monitor data should be representative of PM_{2.5} background concentrations for this project.

SO₂ and NO₂ - The Greenville ESC monitor is the closest monitor to the project site for both pollutants (the other monitors in SC for these pollutants are in the Charleston and Columbia areas). As mentioned above, the Greenville ESC monitor site is located about 32 miles (52 km) to the north-northeast of the project site in a developed area of Greenville. Since the project site is in a comparatively less developed area, the data from the Greenville ESC monitor is likely conservative for this project for both SO₂ and NO₂.

CO - The only CO monitor in South Carolina is located at the Parklane station in the suburbs of Columbia. This monitor site is located about 100 miles (161 km) to the southeast of the project site, in a major urban area with significant CO emissions. Thus, the data from the Parklane monitor is likely conservative for this project.

Ozone - Since the facility is significant for VOC, ozone monitoring data also needs to be reviewed. The nearest ozone monitor is located at Garrison Arena, about 16 miles (26 km) to the northwest of the project site. Development in the monitor area is similar to that near the project site, and the monitor data should be representative of background ozone for this project. The 2022-2024 design value for the Garrison Arena monitor is 63 ppb, below the 70 ppb standard. It should be noted that 2015-2019 hourly ozone data from the Big Creek monitor, in Anderson County, was used as input for the OLM (ozone limiting method) for NO₂ modeling. The Big Creek monitor ceased operation in 2020 but was the nearest ozone monitor to the project site covering the period of the meteorological data (2015-2019) used in the modeling (the Garrison Arena site was not active over that period).

The monitors discussed above are operated by SCDES in support of NAAQS attainment activities and meet the quality assurance requirements for this work. These activities require the data to be quality assured, and the level of quality assurance for these monitors meets the requirements for PSD modeling.

Therefore, it has been determined that the data SCDES has obtained for background concentrations are representative of, or more conservative than, the ambient pollutant concentrations in the area of the proposed facility. In accordance with Chapter C, Section III of the New Source Review Manual (Draft document, dated October 1990), SCDES approves the use of this data to fulfill pre-construction monitoring requirements.

B.2. PSD CLASS II FULL IMPACT MODELING ANALYSIS

A Full Impact Analysis is required for any pollutant for which the proposed source's estimated (modeled) ambient pollutant concentrations exceed the SIL (determined in Table B.1). Separate analyses are performed for determining compliance with the NAAQS and PSD increments. The NAAQS analysis must also include background pollutant concentrations. The Full Impact Analysis consists of modeling all facilities within the SIA, and those in the SA which are not excluded by the screening protocol ("20D Rule," defined below) or via EPA's latest guidance in Appendix W and 11/20/2024 memo, "Guidance on Developing Background Concentrations for Use in Modeling Demonstrations." The SA is usually an area extending beyond the SIA to a distance of 50 km from the proposed source. The SIA determined for each pollutant is shown in Table B.1.

The "Screening Threshold Method for PSD Modeling" or "20D Rule" was used to determine which sources within the SA to include. To exclude a source, the emissions (tpy) of a pollutant must be less than 20 times the distance (km) from the project site. Multiple emission points at a source were grouped together, and sources within 2 km of each other were summed prior to applying the 20D Rule. Those sources with emissions greater than or equal to 20D were retained and considered in the Full Impact modeling for both the Class II NAAQS and PSD Increment analyses (unless they could be excluded based on EPA guidance as mentioned in the paragraph above).

Example "20D" Calculation:

$Q \text{ (tpy)} < 20 \times D \text{ (km)}$ [if true, can exclude source]

Q = total emissions for source being evaluated for inclusion (each pollutant must be addressed)

D = distance from the project site or SIA boundary to the facility considered for inclusion

Where:

$$D = [(x_1 - x_2)^2 + (y_1 - y_2)^2]^{1/2} - R$$

R = zero (short term emissions) or distance from the PSD source to the edge of the SIA (long term emissions)

x_1, y_1 = coordinates of the source being considered for exclusion (in km)

x_2, y_2 = coordinates of the PSD Source (in km)

B.2.a. PSD CLASS II FULL IMPACT - NAAQS ANALYSIS

Table B.3 shows a list of facilities (in the SIA, plus those in the SA that could not be excluded using the 20D Rule) that are included in the full impact analysis for NAAQS modeling.

Table B.3 CLASS II FULL IMPACT ANALYSIS - NAAQS SIA AND SA ("20D") SOURCES INCLUDED				
PM ₁₀	PM _{2.5}	NO ₂		CO
24-hour	24-hr & Annual	1-hour	Annual	1-hour
Duke - Anderson	Duke - Anderson	Duke - Anderson	Duke - Anderson	Duke - Anderson
First Quality Tissue	First Quality Tissue	Duke Energy - Lee	Duke Energy - Lee	Duke Energy - Lee
Owens Corning	Owens Corning	First Quality Tissue	First Quality Tissue	Santee Cooper - Rainey
		Hartwell Energy (GA)	Hartwell Energy (GA)	
		Honea Path Gen. Facility	Honea Path Gen. Facility	

Table B.3 CLASS II FULL IMPACT ANALYSIS - NAAQS SIA AND SA ("20D") SOURCES INCLUDED				
PM ₁₀	PM _{2.5}	NO ₂		CO
		Owens Corning	Owens Corning	
		Santee Cooper - Rainey	Santee Cooper - Rainey	
		Transcontinental Gas Pipeline (Moore, SC)		
		Transcontinental Gas Pipeline (Comer, GA)		

Table B.4 below shows that when proposed facility emissions are modeled with offsite sources in the SIA and SA (as appropriate), and background values are added (along with secondary impacts for PM_{2.5} and Ozone), the NAAQS are not exceeded and compliance has been demonstrated.

Table B.4 CLASS II FULL IMPACT ANALYSIS - NAAQS							
Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m ³) ⁽¹⁾	Secondary Impact Concentration (µg/m ³) ⁽²⁾	Background Concentration (µg/m ³) ⁽³⁾	Total (µg/m ³)	Standard (µg/m ³)	% of Standard
PM ₁₀	24-Hour	9.0 ⁽⁴⁾	N/A	35	44	150	29
PM _{2.5}	24-Hour	4.8 ⁽⁵⁾	0.1	13.1	18	35	51
	Annual	0.9 ⁽⁶⁾	0.0	7.1	8.0	9.0	89
NO ₂	1-Hour	179.1 ⁽⁷⁾⁽⁸⁾⁽⁹⁾	N/A	⁽¹¹⁾	179	188	95
	Annual	8.3 ⁽⁸⁾⁽¹⁰⁾	N/A	12.8	21	100	21
CO	1-Hour	3055	N/A	1105	4160	40,000	10
Ozone	8-Hour	N/A	3.6 ppb	63 ppb	67 ⁽¹²⁾	70 ppb	96
1) AERMOD was used to determine primary maximum impacts. The highest-first-high modeled concentration was used for annual averaging periods and the highest-second-high was used for all other averaging periods, except as noted otherwise.							
2) Secondary pollutant impacts for PM _{2.5} and Ozone were computed using MERPs. See Section G.1 (and specific project-level secondary impacts in Tables G.4 and G.6) for more details. Note: Secondary impacts from existing off-site sources are accounted for within applied background concentrations.							
3) See Section E for more details.							
4) The sixth-high over five years of met data.							
5) The five-year average of the eighth-high concentrations.							
6) The five-year average of the maximum annual concentrations.							
7) The five-year average of the eighth-high 1-hour daily maximum concentrations.							
8) The OLM option using 2015-2019 hourly ozone data from the Big Creek monitoring station was applied.							
9) The Facility modeled concentration was slightly higher than the BAQ result and is listed here.							
10) The BAQ modeled concentration was slightly higher than the Facility result and is listed here.							
11) Background concentrations (season-by-hour-of-day as shown in Table E.3) were added within the model.							
12) Ozone is usually not emitted directly to the atmosphere. The ozone maximum impact includes the secondary ozone project impacts (as shown in Table G.6) using MERPs for NO _x and VOC precursors. The total combined (current background design value + secondary) ozone impact is shown to compare against the appropriate ozone standard. The background design value accounts for all existing source contributions.							

The dispersion parameters and modeled emission rates for all offsite sources included in the Class II NAAQS Full Impact Analysis are not included in this summary. They are shown in the facility's application (dated April 2026) and corresponding electronic modeling files.

B.2.b. PSD CLASS II FULL IMPACT - PSD INCREMENT ANALYSIS

The full impact analysis for PSD increment consuming sources was performed in the same manner as the full impact analysis for the NAAQS shown above. As a conservative measure, the same offsite sources included in the NAAQS analyses, except for PM_{2.5}, were included here. Since this project will set the PM_{2.5} minor source baseline date for Anderson County, no offsite sources in Anderson County were included. And no offsite sources outside Anderson County were included since all eligible sources were screened out using the “20D” rule. The facilities included for each of the pollutants are shown in Table B.5 below.

Table B.5			
PSD CLASS II FULL IMPACT ANALYSIS - INCREMENT			
SIA AND SA (“20D”) SOURCES INCLUDED			
PM₁₀	PM_{2.5}		NO₂
24-hour	24-hour	Annual	Annual
Duke - Anderson	Duke - Anderson	Duke - Anderson	Duke - Anderson
First Quality Tissue			Duke Energy - Lee
Owens Corning			First Quality Tissue
			Hartwell Energy (GA)
			Honea Path Gen. Facility
			Owens Corning
			Santee Cooper - Rainey

Table B.6 below indicates that the maximum impact for each pollutant and averaging period does not exceed the respective PSD increment standard.

Table B.6						
PSD CLASS II FULL IMPACT ANALYSIS - INCREMENT						
Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³) ⁽¹⁾	Secondary Impact Concentration (µg/m³) ⁽²⁾	Total Impact Concentration (µg/m³)	Standard (µg/m³)	% of Standard
PM ₁₀	24-Hour	12.8	N/A	13	30	43
PM _{2.5}	24-Hour	8.2	0.1	8	9	89
	Annual	0.5	0.0	1	4	25
NO ₂	Annual	8.2 ⁽³⁾	N/A	8	25	32
1) AERMOD was used to determine primary maximum impacts. The highest-first-high modeled concentrations for the 5 years of meteorological data are listed for annual averaging periods and the highest second-high is shown for 24-hour averaging periods.						
2) The secondary PM _{2.5} project impacts (using the MERPs method as shown in Table G.4) are shown in this column. There are no increment consuming emissions for offsite sources since this project sets the MSBD for PM _{2.5} . Thus, the same secondary impacts used in the NAAQS analysis were used here. More details are described in Section G.3.						
3) The OLM option using 2015-2019 hourly ozone data from the Big Creek monitoring station was used.						

The dispersion parameters and modeled emission rates for all offsite sources included in the Class II Increment Analysis are not included in this summary. They are shown in the facility's application (dated April 2026) and corresponding electronic modeling files.

SECTION C - ADDITIONAL IMPACT ANALYSIS – GROWTH, SOILS & VEGETATION, AND VISIBILITY IMPAIRMENT

PSD review requires an analysis of any potential impairment to visibility, soils, and vegetation that may occur as a result of the proposed or modified facility/sources. The review also requires an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the new facility.

C.1. GROWTH

The SC PSD rules require the applicant to provide information relating to the nature and extent of air quality impacts from all commercial, residential, industrial and other growth in the area that the facility, or modification, would affect. For the purposes of this report, the area the facility would affect is defined as the significant impact area (SIA). The greatest SIA was determined to be 23 km (14 miles) (Table B.1).

Once the facility is operational, it will employ 30-35 full-time employees. Thus, significant workforce-associated residential and commercial growth is not expected to cause or contribute to a quantifiable adverse impact on local ambient air quality.

C.2. SOILS AND VEGETATION

Maximum predicted offsite impacts were compared to EPA screening levels or secondary NAAQS (Table C.1). Modeling of all the proposed (facility-only) emissions indicates there will be no adverse impacts expected on soils or vegetation caused by those emissions.

Table C.1 SOILS AND VEGETATION ANALYSIS								
Pollutant	Averaging Time	Model Used	Max. Impact (µg/m ³) ⁽¹⁾	Back-ground (µg/m ³)	Facility/ Regional Impact (µg/m ³) ⁽²⁾	EPA Screening Concentration (µg/m ³)	AAQS Standard (µg/m ³) ^(11a)	Exceeds? (Y or N)
PM ₁₀	24-Hour	AERMOD	18.2	35	53	N/A	150	No
PM _{2.5}	24-Hour	AERMOD/ MERPs	9.9 ⁽³⁾⁽⁵⁾	13.1	23	N/A	35	No
	Annual	AERMOD/ MERPs	0.5 ⁽⁴⁾⁽⁵⁾	7.1	8	579 ^(11b)	15	No
SO ₂	1-Hour	AERMOD	1.8	5.0	7	917 ^(11d)	196	No
	3-Hour	AERMOD	2.0	4.5	7	786 ^(11d)	1300	No
	Annual	AERMOD	0.1	N/A	0	18 ^(11d)	80	No
NO ₂	1-Hour	AERMOD	140.3 ⁽⁶⁾⁽⁷⁾	74.0	214	66,000 ^(11c)	N/A	No
	4-Hour	AERMOD	140.3 ⁽⁶⁾⁽⁷⁾	74.0	214	3760 ^(11d)	N/A	No
	8-Hour	AERMOD	140.3 ⁽⁶⁾⁽⁷⁾	74.0	214	3760 ^(11d)	N/A	No
	1-Month	AERMOD	140.3 ⁽⁶⁾⁽⁷⁾	74.0	214	564 ^(11d)	N/A	No
	Annual	AERMOD	7.3 ⁽⁶⁾	12.8	20	94 ^(11d)	100	No
CO	1-Week	AERMOD	366.8 ⁽⁸⁾	687	1054	1,800,000 ^(11d)	N/A	No
Ozone ⁽⁹⁾	8-Hour	MERPs	4 ⁽¹⁰⁾	63	67	--	70	No
1) The highest-first-high modeled concentration unless noted otherwise.								
2) Results include background values when available (see Section E for background details).								
3) Five-year average of the first-high concentrations								
4) Five-year average of the maximum annual concentrations								

Table C.1 SOILS AND VEGETATION ANALYSIS								
Pollutant	Averaging Time	Model Used	Max. Impact ($\mu\text{g}/\text{m}^3$) (1)	Back-ground ($\mu\text{g}/\text{m}^3$)	Facility/ Regional Impact ($\mu\text{g}/\text{m}^3$) (2)	EPA Screening Concentration ($\mu\text{g}/\text{m}^3$)	AAQS Standard ($\mu\text{g}/\text{m}^3$) (11a)	Exceeds? (Y or N)
5) Includes the primary $\text{PM}_{2.5}$ impact (from the cumulative modeling analysis) and the secondary $\text{PM}_{2.5}$ project impacts using MERPs methodology. See section G.1 for more details. Note: Secondary component impacts from existing sources are accounted for within applied background concentrations.								
6) The OLM option using 2015-2019 hourly ozone data from the Big Creek monitoring station was applied.								
7) The five-year average of the eighth-high 1-hour daily maximum concentrations (also conservatively used for the 4-hour, 8-hour and 1-month averaging periods).								
8) The 8-hour average modeled concentration was conservatively used here to compare to the weekly standard. Background is also an 8-hour average value.								
9) Units for all values are ppb.								
10) The ozone maximum modeled concentration is based on the secondary ozone project impacts using the MERPs methodology. See section G.1 (and specific project-level secondary impacts in Table G.6) for more details.								
11) References: a) Secondary National Ambient Air Quality Standard b) "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.) c) "Diagnosing Injury Caused by Air Pollution" (EPA-68-02-1344) d) "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" (EPA-450/2-81-018, 1980)								

C.3. VISIBILITY

The largest SIA for a 24-hour or annual averaging period is 10 km (Table B.1), which pertains to $\text{PM}_{2.5}$ /24-hour (other SIAs for 24-hour and annual averaging periods are 3 km or less). The only visibility-sensitive area within 10 km of the facility is the Anderson Regional Airport. The airport is located approximately 6.5 km northwest of the facility. However, the $\text{PM}_{2.5}$ /24-hour SIL analysis indicated there are no modeled concentrations exceeding the SIL at or near the airport (the nearest receptor where the modeled concentration exceeded the SIL is about 3 km from [southeast of] the airport). Thus, a visibility analysis for Class II areas is not necessary for this project.

SECTION D – PSD CLASS I IMPACT ANALYSIS

Air quality impacts must be addressed for all Class I areas within 300 km of a PSD facility. Those Class I areas for this project (and distance from the facility) include the following: Shining Rock National Wilderness Area (101 km); Great Smoky Mountains National Park (150 km); Joyce Kilmer National Wilderness Area (153 km); Linville Gorge National Wilderness Area (170 km); and Cohutta National Wilderness Area (195 km). Thus, Class I impacts must be addressed for these five Class I areas.

A Class I analysis typically consists of the following:

- 1) SIL (Significant Impact Level) analysis;
- 2) PSD Increment analysis (if required per the SIL analysis); and
- 3) AQRV (Air Quality Related Values) analysis, if requested by the FLM.

For this project, only the SIL analysis was conducted and is addressed in Section D.1 below. The facility screened out (using "Q/D") of the requirement to conduct an AQRV analysis the details of which are shown in Section D.3.

Model Overview

For the SIL analysis:

- If the Class I area is ≤ 50 km from the facility, AERMOD should be used.
- If the Class I area is > 50 km from the facility, a long-range transport model such as CALPUFF should be used. Alternatively, a conservative screening analysis can be done using AERMOD with an arc of receptors at a range of 50 km from the facility in the direction of the Class I area(s).

Both AERMOD and CALPUFF were used for the SIL analysis (see Section D.1 below).

For the CALPUFF modeling, MM5 (mesoscale meteorological forecast model) data for 2001, 2002, and 2003 were used in CALMET (version 5.8) to provide input into CALPUFF (version 5.8.5). CALPOST (version 6.221) was used as the postprocessor to generate the ambient pollutant concentrations necessary at the Class I areas. More details about the model settings used are shown in the facility's application of April 2026. Note that CALPUFF review modeling was not performed by SCDES for this project but was accepted upon a review of the model input/output files and information in the facility's application.

D.1. CLASS I SIGNIFICANT IMPACT LEVEL ANALYSIS

The facility initially modeled the project emissions using AERMOD with receptors placed in a circle at a range of 50 km from the facility. Since the closest Class I area is 101 km from the facility, this modeling is a conservative screening of the significant impact at each of the five Class I areas. The maximum impacts from that analysis (plus secondary impact as appropriate) were less than the SIL for all pollutants and averaging periods except for PM_{10} /24-hour and $PM_{2.5}$ /24-hour. For those pollutants/averaging periods, a CALPUFF analysis was then conducted using receptors in each of the five Class I areas (i.e., receptor fields developed by the Federal Land Manager for use in regional haze modeling). The maximum impacts from that analysis (plus secondary impact for $PM_{2.5}$ /24-hour) were below the respective SILs. All Class I SIL analysis results are shown in Table D.1 below.

Table D.1						
PSD CLASS I SIGNIFICANT IMPACT LEVEL (SIL) ANALYSIS						
Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Secondary Impact Concentration ($\mu\text{g}/\text{m}^3$) ⁽⁴⁾	Total Project Impact Concentration ($\mu\text{g}/\text{m}^3$)	SIL ($\mu\text{g}/\text{m}^3$)	Significant Impact? (Y or N)
PM_{10}	24-HOUR	0.15 ⁽¹⁾	N/A	0.2	0.3	No
	ANNUAL	0.03 ⁽²⁾	N/A	0.0	0.2	No
$PM_{2.5}$	24-HOUR	0.15 ⁽¹⁾	0.04	0.19	0.27	No
	ANNUAL	0.03 ⁽²⁾	0.001	0.03	0.05	No
SO_2	3-HOUR	0.40 ⁽²⁾	N/A	0.4	1.0	No
	24-HOUR	0.07 ⁽²⁾	N/A	0.1	0.2	No
	ANNUAL	0.005 ⁽²⁾	N/A	0.0	0.1	No
NO_2	ANNUAL	0.03 ⁽²⁾⁽³⁾	N/A	0.0	0.1	No
1) The maximum CALPUFF result from all receptors at the five pertinent Class I areas.						
2) The first high AERMOD result for a ring of receptors at a range of 50 km from the facility (except $PM_{2.5}$ /Annual, which is the first-high averaged over 5 years).						
3) The OLM option using 2015-2019 hourly ozone data from the Big Creek monitoring station was applied.						
4) Secondary pollutant impacts via MERPs were used for $PM_{2.5}$. See Section G.5 for details.						

D.2. CLASS I INCREMENT CONSUMPTION IMPACT ANALYSIS

This analysis is not required since no significant impacts were indicated by the Class I SIL analysis (Table D.1).

D.3 CLASS I AQRV ANALYSIS

The FLAG 2010 document allows sources that are > 50 km from the Class I area to potentially be screened out of the requirement to conduct an AQRV analysis. The screening is based on total emissions of certain pollutants and distance from the source to the Class I area. If $Q/D \leq 10$ (where D = distance (km) from the source to the Class I area; Q = emissions (TPY) of $SO_2 + NO_x + PM_{10} + H_2SO_4$), the facility is not required to do an AQRV analysis. Note that only emission increases associated with the proposed project modification need to be considered (per additional information provided in public comment responses to the FLAG 2010 document).

The Q/D results for each Class I area are shown in Table D.2 (below). These results show that an AQRV analysis is not required for this project.

Table D.2								
AQRV SCREENING ANALYSIS								
Class I Area	Q (TPY) ⁽¹⁾					D (km) ⁽²⁾	Q/D ⁽³⁾	Analysis Req'd?
	SO ₂	NO _x	PM ₁₀	H ₂ SO ₄	Total			
Shining Rock NWA	60.0	421.9	350.9	4.6	837.4	101	8.3	No
Great Smoky Mtns NP						150	5.6	No
Joyce Kilmer NWA						153	5.5	No
Linville Gorge NWA						170	4.9	No
Cohutta NWA						195	4.3	No
1) Based on typical 24-hour emissions extrapolated to TPY. For the CTs, the design load scenario was assumed, i.e., firing natural gas at 100% load using duct burners (which is the main reason emissions for NO _x and PM ₁₀ are less than those in Table A.1 above; also, fuel oil usage will be limited to 500 hrs/year in the permit). Since the emergency engines will be tested ≤1 hour on a given day, and the auxiliary boiler will be limited to a 10% capacity factor, emissions from those sources were annualized.								
2) Distance from facility to Class I area								
3) If Q/D ≤ 10, an AQRV analysis is not required.								

SECTION E – SOUTH CAROLINA FACILITY-WIDE COMPLIANCE DEMONSTRATION

All major sources proposing new construction or construction modifications in South Carolina are required to demonstrate compliance with SC Regulation No. 62.5 Standards 2 (NAAQS), 7 (Class II PSD Increment), and 8 (Air Toxics). Compliance with each state standard is addressed below:

Standard 2: Compliance for PM₁₀, PM_{2.5}, NO₂ and CO (1-hour) is shown using results from the PSD Class II full impact AERMOD analysis. Compliance for SO₂ and CO (8-hour) is shown using results from the PSD Class II SIL AERMOD analysis (SO₂ and CO/8-hour were not included in the full impact analysis). A compliance demonstration for lead is not required since the facility-wide emissions are below the exemption emission rate.

Standard 7: Standard 7 (PSD) Part k - "Source Impact Analysis" and Part p - "Sources Impacting Federal Class I Areas - Additional Requirements" were addressed in Sections B and D above, as appropriate. Standard 7 increments were discussed and modeled as full impact (including all facility sources) in Section B (see Table B.6). In addition, Class I Area impacts were shown to be below respective significant impact levels for all applicable pollutants and averaging periods in Section D (Table D.1). Thus, no further analysis is needed for this standard.

Standard 8:

All combustion sources will burn only virgin fuels. Therefore, all emissions from combustion are exempt from a compliance demonstration. Process emissions include five pollutants that will be emitted as fugitives from diesel storage tanks, pigging events and other system leaks. Compliance for those pollutants is shown via a de minimis analysis.

Compliance data for Standards 2 and 8 and shown in Tables E.1 – E.4 below.

Table E.1 STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS ANALYSIS							
Pollutant	Averaging Time	Basis	Maximum Concentration (µg/m ³) ⁽¹⁾	Background Concentration (µg/m ³)	Total (µg/m ³)	Standard (µg/m ³)	% of Standard
PM ₁₀	24-Hour	AERMOD	9.0 ⁽²⁾	35	44	150	29
PM _{2.5}	24-Hour	AERMOD	4.8 ⁽³⁾	13.1	18	35	51
	Annual	AERMOD	0.9 ⁽⁴⁾	7.1	8	12	67
SO ₂	1-Hour	AERMOD	1.8 ⁽⁵⁾	5.0	7	196	4
	3-Hour	AERMOD	2.0 ⁽⁶⁾	4.5	7	1300	1
NO ₂	1-Hour	AERMOD	179.1 ⁽⁷⁾⁽⁸⁾	⁽⁹⁾	179	188	95
	Annual	AERMOD	8.4 ⁽⁶⁾⁽⁸⁾	12.8	21	100	21
CO	1-Hour	AERMOD	3055	1105	4160	40,000	10
	8-Hour	AERMOD	368	687	1055	10,000	11
1) From the PSD Class II full impact NAAQS analysis, except for SO ₂ and CO/8-hr which are from the Class II SIL analysis. 2) The sixth-high over five years of met data. 3) The five-year average of the eighth-high concentrations. 4) The five-year average of the maximum annual concentrations. 5) The five-year average of the daily maximum 1-hr concentrations. 6) The highest-first-high 7) The five-year average of the eighth-high 1-hour daily maximum concentrations. 8) The OLM option using 2015-2019 hourly ozone data from the Big Creek monitor was applied. 9) Temporal season-by-hour-of-day background data from the Greenville ESC monitor was added within the model.							

Table E.2 BACKGROUND MONITORING DATA (µg/m³)									
Pollutant	Site Name	County	Year	1-Hr	3-Hr	8-Hr	24-Hr	3-Mo	Annual
PM ₁₀	Greenville ESC	Greenville	22-24				35		
PM _{2.5}	Hillcrest Middle School	Greenville	22-24				13.1		7.1
SO ₂	Greenville ESC	Greenville	22-24	5.0	4.5				
NO ₂	Greenville ESC	Greenville	22-24	74.0 ⁽¹⁾					12.8
CO	Parklane	Richland	22-24	1105		687			
Ozone	Garrison Arena	Anderson	22-24			63 ⁽²⁾			
PM ₁₀ 24-hr is the fourth-high over three-year period. The concentration listed for all other pollutants and averaging periods is the 3-year design value. 1) Temporal season-by-hour-of-day data was used for the 1-hour standard. See Table E.3 for details. 2) Units are ppb.									

Table E.3 NO₂ SEASON-BY-HOUR BACKGROUND MONITOR DATA (µg/m³) GREENVILLE ESC - 2022-2024				
Hour	Winter	Spring	Summer	Fall
1	62.1	51.4	32.6	45.2
2	57.7	49.5	27.6	42.6
3	55.2	47.0	27.0	41.4
4	54.6	42.0	23.2	40.1
5	53.3	45.8	27.6	40.8
6	52.1	47.7	28.2	38.9
7	52.1	54.6	33.2	42.6
8	55.8	54.6	28.2	48.3
9	56.4	44.5	21.3	45.8
10	48.3	28.2	13.8	35.1
11	38.3	16.9	10.0	28.2
12	27.0	13.2	11.3	16.3
13	23.2	11.3	8.2	13.2
14	25.7	10.7	8.2	13.2
15	21.9	11.9	8.2	12.5
16	25.7	13.8	10.0	13.8
17	29.5	13.8	12.5	15.7
18	35.1	14.4	12.5	22.6
19	51.4	16.3	13.2	39.5
20	63.3	26.3	15.7	65.8
21	74.6	36.4	23.2	74.6
22	73.4	45.2	30.1	69.6
23	72.1	48.3	32.0	64.0
24	66.5	55.8	37.6	59.6

Table E.4 STANDARD NO. 8 - TOXIC AIR POLLUTANTS DE MINIMIS ANALYSIS			
Pollutant	CAS Number	Emission Rate (LB/DAY) ⁽¹⁾	De Minimis (LB/DAY)
Benzene	71-43-2	0.086	1.800
Ethyl Benzene	100-41-4	0.145	52.200
Hexane	110-54-3	0.026	10.800
Toluene	108-88-3	1.099	24.000
Xylene (mixed isomers)	1330-20-7	3.024	52.200

1) Due to rounding, these emission rates may not equal the lb/day rates obtained when the facility total lb/hr rates in Table F.4 below are multiplied by 24.

SECTION F – SOURCE EMISSION RATES & STACK PARAMETERS

This section contains modeled source emissions rates, stack parameters, and other supportive information related to the sources at the facility.

Table F.1									
STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)									
Emission Point ID	PM₁₀	PM_{2.5}		SO₂		NO_x		CO	
	24-hr	24-hr	Annual	1-hr	3-hr	1-hr	Annual	1-hr	8-hr
AUX-1	0.92	0.92	0.09	0.07		16.97	1.70	10.18	
BYPASS-1 ⁽¹⁾	--	--		--		233.42	--	59.04	--
BYPASS-2 ⁽¹⁾	--	--		--		233.42	--	59.04	--
CS-ENG	0.003	0.003	0.005	--	8.2E-04	--	0.08	2.65	0.33
CS-HEAT-1-1	2.2E-05	2.2E-05		1.8E-06		2.9E-04		2.5E-04	
CS-HEAT-1-2	2.2E-05	2.2E-05		1.8E-06		2.9E-04		2.5E-04	
CS-HEAT-1-3	2.2E-05	2.2E-05		1.8E-06		2.9E-04		2.5E-04	
CS-HEAT-1-4	2.2E-05	2.2E-05		1.8E-06		2.9E-04		2.5E-04	
CS-HEAT-2-1	0.002	0.002		1.7E-04		0.03		0.02	
CS-HEAT-2-2	0.002	0.002		1.7E-04		0.03		0.02	
CS-HEAT-2-3	0.002	0.002		1.7E-04		0.03		0.02	
CS-HEAT-2-4	0.002	0.002		1.7E-04		0.03		0.02	
CS-HEAT-2-5	0.002	0.002		1.7E-04		0.03		0.02	
CT-1 ⁽¹⁾	119.29	119.29	44.43	6.82		97.94	48.18	22.54	
CT-2 ⁽¹⁾	119.29	119.29	44.43	6.82		97.94	48.18	22.54	
DFP-1	0.006	0.006	0.008	--	0.001	--	0.14	2.22	0.28
DPH-1	0.08	0.08		0.006		1.00		0.84	
DPH-2	0.08	0.08		0.006		1.00		0.84	
EDG-1	0.05	0.05	0.06	--	0.01	--	1.77	16.94	2.12
FACILITY TOTAL	239.73	239.73	89.19	13.72	13.73	215.00	102.20	78.85	59.77

1) The rates shown for CT-1 and CT-2 pertain to the design load scenario. Rates for CT-1 and CT-2 for the worst case and startup/shutdown scenarios are shown in the facility's April 2026 application. Rates for the bypass scenario are listed here for stacks BYPASS-1 and BYPASS-2 since that scenario uses the bypass stacks instead of CT-1 and CT-2. The bypass scenario rates are not included in the facility totals.

Table F.2						
STANDARD NO. 7 - PSD CLASS II INCREMENT EMISSION RATES (LB/HR)						
Emission Point ID	Minor Source Baseline Date(s)					
	6/8/1999	6/2/2026			6/8/1999	6/8/1999
	PM₁₀	PM_{2.5} ⁽¹⁾			SO₂	NO_x
		Primary ⁽²⁾	SO₂	NO_x ⁽²⁾		
AUX-1	--	--	--	17.0 (1.7)	--	1.7
CT-1	119.3	119.3 (44.4)	6.8	97.9 (48.2)	6.8	48.2
CT-2	119.3	119.3 (44.4)	6.8	97.9 (48.2)	6.8	48.2
FACILITY TOTAL	238.6	238.6 (88.8)	13.6	212.8 (98.1)	13.6	98.1

1) This project sets the MSBD for PM_{2.5} in Anderson County.

2) Short-term rates are shown with annual rates in parentheses.

Table F.3 STANDARD NO. 2 – EXEMPTED AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	Lead
AUX-1	--	--	--	--	--	6.04E-05
CS-HEAT-1-1	--	--	--	--	--	1.47E-09
CS-HEAT-1-2	--	--	--	--	--	1.47E-09
CS-HEAT-1-3	--	--	--	--	--	1.47E-09
CS-HEAT-1-4	--	--	--	--	--	1.47E-09
CS-HEAT-2-1	--	--	--	--	--	1.41E-07
CS-HEAT-2-2	--	--	--	--	--	1.41E-07
CS-HEAT-2-3	--	--	--	--	--	1.41E-07
CS-HEAT-2-4	--	--	--	--	--	1.41E-07
CS-HEAT-2-5	--	--	--	--	--	1.41E-07
CT-1	--	--	--	--	--	2.44E-03
CT-2	--	--	--	--	--	2.44E-03
DFP-1	--	--	--	--	--	2.43E-05
DPH-1	--	--	--	--	--	5.00E-06
DPH-2	--	--	--	--	--	5.00E-06
EDG-1	--	--	--	--	--	1.85E-04
FACILITY TOTAL	--	--	--	--	--	0.005

Table F.4 STANDARD NO. 8 – DE MINIMIS TOXIC AIR POLLUTANTS EMISSION RATES (LB/HR)					
Emission Point ID	Benzene	Ethyl Benzene	Hexane	Toluene	Xylene
	71-43-2	100-41-4	110-54-3	108-88-3	1330-20-7
ES_PIGGING	--	--	1.63E-04 ⁽¹⁾	--	--
FUGITIVES	--	--	1.14E-04	--	--
TK-1 / TK-2	3.57E-03	6.04E-03	7.90E-04	4.58E-02	0.126
FACILITY TOTAL	3.57E-03	6.04E-03	1.07E-03	4.58E-02	0.126
1) For simplicity, the average lb/hr rate spread over 24 hours is shown here (i.e., 3.91E-03 lb/day divided by 24). This differs from the actual lb/hr rate of 1.96E-03 per event (duration=1 hour), which may occur up to 2 times in a 24-hour period (i.e., 1.96E-03 lb/hr x 2 = 3.91E-03 lb/day).					

**Table F.5
EMISSION POINT DESCRIPTIVE INFORMATION**

Emission Point ID	Source Identification & Description		Date Installed (Modified)	Status	Model ID
AUX-1	Auxiliary Boiler (123.6 MMBtu/hr; NG-fired; limited to 876 hr/yr)		2026	Exempt Std 8: Burns only virgin fuel	AUX_BLR
BYPASS-1	East Bypass Stack	Used when CT-1 or CT-2 are unavailable (<500 hr/yr per turbine)	2026		BYPASS_E
BYPASS-2	West Bypass Stack		2026		BYPASS_W
CS-ENG	600 hp Emergency Engine (NG-fired) at Compressor Station		2026	Exempt Std 2: Pb < 0.114 lb/hr (facility-wide) Exempt Std 8: Burns only virgin fuel	CP_EMGEN
CS-HEAT-1-1	Small Outside Heater 1 (NG-fired)		2026		CP_OHT01
CS-HEAT-1-2	Small Outside Heater 2 (NG-fired)		2026		CP_OHT02
CS-HEAT-1-3	Small Outside Heater 3 (NG-fired)		2026		CP_OHT03
CS-HEAT-1-4	Small Outside Heater 4 (NG-fired)		2026		CP_OHT04
CS-HEAT-2-1	Rooftop Vent 1	20 Indoor Heaters (0.072 MMBtu/hr each, NG-fired) at Compressor Station	2026		CP_IHT01
CS-HEAT-2-2	Rooftop Vent 2		2026		CP_IHT02
CS-HEAT-2-3	Rooftop Vent 3		2026		CP_IHT03
CS-HEAT-2-4	Rooftop Vent 4		2026		CP_IHT04
CS-HEAT-2-5	Rooftop Vent 5		2026		CP_IHT05
CT-1	Combustion Turbine East	4.989 MMBTU/hr each (NG-fired, No. 2 Fuel Oil backup)	2026		CT_E
CT-2	Combustion Turbine West		2026		CT_W
DFP-1	Firewater Pump Engine (2.7 MMBtu/hr; diesel-fired; < 500 hr/yr)		2026		FW_PMP
DPH-1	Dewpoint Heater 1 (10.2 MMBtu/hr; NG-fired)		2026		DPHEAT_1
DPH-2	Dewpoint Heater 2 (10.2 MMBtu/hr; NG-fired)		2026		DPHEAT_2
EDG-1	Emergency Generator (20.6 MMBtu/hr; diesel-fired; < 500 hr/yr)		2026	EM_GEN	
ES_PIGGING	Fugitives from Pigging Events		2026	ES_PIGGING	
FUGITIVES	Fugitive Leaks – Natural gas piping components		2026	FUGITIVES	
TK-1 / TK-2	Diesel Storage Tanks 1 & 2 (8000 gallons each)		2026	STORAGE TANKS	

**Table F.6
POINT SOURCE PARAMETERS**

Emission Point ID	Date Last Modeled	Location (UTM) ⁽¹⁾		Release Height (ft)	Exit Temp. (°F)	Exit Velocity (ft/sec)	Inside Diameter (ft)	In-Stack NO ₂ Ratio	Discharge Orientation	Cap? (Y/N)	Distance To Property Line (ft)	Building Parameters		
		East (m)	North (m)									Height (ft)	Length (ft)	Width (ft)
AUX-1	Current	347180	3812740	100	478	17.9	2.0	0.1 ⁽²⁾	Vertical	N	656	(5)	(5)	(5)
BYPASS-1	Current	347297	3812706	150	1138	139.4	26.5	0.2 ⁽²⁾	Vertical	N	383	(5)	(5)	(5)
BYPASS-2	Current	347246	3812706	150	1138	139.4	26.5	0.2 ⁽²⁾	Vertical	N	506	(5)	(5)	(5)
CS-ENG	Current	347267	3812943	10	650	10.0	1.0	0.5 ⁽³⁾	Vertical	N	348	(5)	(5)	(5)
CS-HEAT-1-1	Current	347256	3812893	3	200	3.3	0.5	0.1 ⁽²⁾	Vertical	N	351	(5)	(5)	(5)
CS-HEAT-1-2	Current	347265	3812893	3	200	3.3	0.5	0.1 ⁽²⁾	Vertical	N	325	(5)	(5)	(5)
CS-HEAT-1-3	Current	347273	3812893	3	200	3.3	0.5	0.1 ⁽²⁾	Vertical	N	299	(5)	(5)	(5)
CS-HEAT-1-4	Current	347281	3812893	3	200	3.3	0.5	0.1 ⁽²⁾	Vertical	N	272	(5)	(5)	(5)
CT-1	Current	347297	3812758	200	165 ⁽⁴⁾	66.5 ⁽⁴⁾	23.5	0.2 ⁽²⁾	Vertical	N	276	(5)	(5)	(5)
CT-2	Current	347246	3812758	200	165 ⁽⁴⁾	66.5 ⁽⁴⁾	23.5	0.2 ⁽²⁾	Vertical	N	405	(5)	(5)	(5)
DFP-1	Current	347210	3812768	5	667	20.7	0.2	0.5 ⁽³⁾	Vertical	N	494	(5)	(5)	(5)
DPH-1	Current	347386	3812740	12	489	10.0	2.7	0.1 ⁽²⁾	Vertical	N	97	(5)	(5)	(5)
DPH-2	Current	347386	3812730	12	489	10.0	2.7	0.1 ⁽²⁾	Vertical	N	119	(5)	(5)	(5)
EDG-1	Current	347284	3812609	10	650	10.0	1.0	0.5 ⁽³⁾	Vertical	N	593	(5)	(5)	(5)

1) NAD83 datum

2) Per EPA ISR database

3) Default value

4) For the design load modeling scenario. See table below for the worst-case modeling scenario parameters per pollutant (for short term averaging periods) and startup and shutdown (SUSD) parameters for NO₂/1-hr.

Scenario	Pollutant	Exit Temp. (F)	Exit Velocity (ft/sec)
Worst-Case	PM ₁₀ & PM _{2.5}	165	45.7
	SO ₂	165	66.6
	NO ₂	188	70.9
	CO	163	36.7
SUSD	NO ₂	163	36.7

5) See modeling files

Table F.7
VOLUME SOURCE PARAMETERS

Emission Point ID	Date Last Modeled	Location (UTM) ⁽¹⁾		Release Height AGL (ft)	Physical Horizontal Dimension (ft)	Initial Horizontal Dimension σ_y (ft)	Physical Vertical Dimension (ft)	Initial Vertical Dimension σ_z (ft)	Distance To Property Line (ft)	In-Stack NO ₂ Ratio
		East (m)	North (m)							
CS-HEAT-2-1	Current	347260	3812912	55	1.6	0.4	55	26	354	0.1 ⁽²⁾
CS-HEAT-2-2	Current	347265	3812912	55	1.6	0.4	55	26	338	0.1 ⁽²⁾
CS-HEAT-2-3	Current	347270	3812912	55	1.6	0.4	55	26	322	0.1 ⁽²⁾
CS-HEAT-2-4	Current	347275	3812912	55	1.6	0.4	55	26	305	0.1 ⁽²⁾
CS-HEAT-2-5	Current	347280	3812912	55	1.6	0.4	55	26	305	0.1 ⁽²⁾

1) NAD83 datum

2) Per EPA ISR database

Table F.8
AERMOD / AERMAP SPECIFICATIONS TABLE

MET DATA ⁽¹⁾	AND-GSO 2015-2019 [Surface = Anderson, SC (782 ft MSL); Upper Air = Greensboro, NC]														
	ADJ_U*	☒	Y	(Y/N)											
OZONE DATA	Big Creek hourly for 2015-2019 ⁽²⁾														
OLM SETTINGS	NO ₂ /NOx In Stack Ratio (ISR) = 0.5 ⁽³⁾						NO ₂ /NOx Ambient Equilibrium Ratio = 0.9								
NED TERRAIN FILES	SC: Abbeville, Anderson, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens and Spartanburg GA: Ebert, Franklin, Hart, Madison, Oglethorpe and Stephens														
PROJECTION DATUM	NAD27	☐			NAD83	☒	Y		WGS-84	☐			NWS-84	☐	
RURAL or URBAN?	Rural	☒	Y		Urban	☐									
ELEVATIONS EXTRACTED ⁽⁴⁾	Buildings	☒	N		Sources	☒	N		Tanks	☐			Receptors	☒	Y

1) The most recent version of AERMET (v24142, at the time of the application submittal) was used to prepare the data.

2) Used to apply ozone data for the OLM (ozone limiting method) in AERMOD.

3) This default value was used for stacks with unknown ISR. See specific in-stack ratios used as listed in Tables F.6 and F.7.

4) Building and source elevations were manually set to 250.55 meters (822 feet), the planned grade elevation of the facility site.

SECTION G – PSD APPENDIX - SECONDARY POLLUTANT IMPACT INFORMATION

Purpose: This Appendix contains background information about Modeled Emission Rates for Precursors (MERPs) analysis and details of how secondary pollutant (PM_{2.5} and ozone) concentrations were calculated for this project.

Background: EPA developed a two-tiered approach to quantitatively address individual source secondary impacts on 24-hour and annual PM_{2.5} (from SO₂ and NO_x precursor emissions) and 8-hour ozone (from NO_x and VOC precursor emissions). Tier 1 involves the use of empirical relationships between precursor emissions and secondary impacts, while Tier 2 involves more refined case-specific chemical transport modeling. The Tier 1 approach is used for this project.

Methodology: The Tier 1 approach is based on EPA's April 2019 "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM_{2.5} under the PSD Permitting Program" and EPA's clarification memo on this topic of April 2024.

EPA conducted photochemical modeling of hypothetical sources (with varying precursor emission rates, stack heights, and locations around the US) to determine primary pollutant impacts from secondary pollutants. Data from the single source hypothetical modeling analyses are provided in the "MERPs VIEW Qlik" web application (<https://www.epa.gov/scram/merps-view-qlik>).

EPA recommends using this 3-step approach:

- 1) Identify a representative hypothetical source from EPA's modeling results.
- 2) Acquire the source characteristics and associated modeling results for the hypothetical source.
- 3) Apply the source characteristics and photochemical modeling results from Step 2 above to the MERP equation (see below) to project the air quality impact and compare to the appropriate SIL (or standard).

MERP equation:

$$\text{Project Impact} = \text{Modeled impact (hypothetical source)} \times \frac{\text{Project emis. rate}}{\text{Modeled emis. rate (hypo. source)}}$$

Scope of Secondary Pollutant Impacts for this project: The Tier 1 approach was applied using hypothetical model results for the PSD analyses as shown in Table G.1 below.

Table G.1 SECONDARY POLLUTANT IMPACTS USING PROJECT AND OFFSITE EMISSIONS				
PSD Analysis		Project		Offsite
		PM _{2.5}	Ozone	PM _{2.5}
Class II	SIL	Yes	Yes	
	NAAQS	Yes	Yes	
	Increment	Yes		No
	Soil & Vegetation	Yes	Yes	
Class I	SIL	Yes		

Further discussion, as appropriate, and quantification of secondary impacts for these analyses are addressed in the sections below.

EPA Hypothetical Modeled Source

The hypothetical modeled source and parameters used for the secondary impact calculations are shown in the table below.

Table G.2 EPA HYPOTHETICAL MODELED SOURCE	
Location ⁽¹⁾	Allendale, SC
Emissions (TPY) ⁽²⁾	500
Release Height (m) ⁽³⁾	90
1) This hypothetical source was selected as representative of the project source based on similarities related to location, surrounding terrain elevation, climate, regional/local emissions and background pollutant concentrations.	
2) The project precursor emission increases for NO _x , SO ₂ , and VOC are closest to 500 TPY (amongst the 500, 1000 or 3000 TPY choices), so the 500 TPY hypothetical model case was used for each precursor pollutant.	
3) The sources with the greatest precursor emissions, CT_W & CT_E, have a release height of 200 feet (61 meters). Thus, the 90 m (instead of 10 m) stack height hypothetical model case was used as the most representative source height for the MERPs analyses.	

G.1. CLASS II SIL

G.1.a. PM_{2.5}

At least one of the contributing project emission increases (primary PM_{2.5}, secondary SO₂ or secondary NO_x) is greater than the respective SER threshold as shown in Table A.1. As a result, both the primary and secondary PM_{2.5} combined impacts from the proposed PSD project were included in the comparison to the appropriate PM_{2.5} SIL as shown in Table B.1.

Primary PM_{2.5} project emissions were modeled using AERMOD. The MERPs methodology (as described above) combines the impacts of SO₂ and NO_x project emissions to determine the total project secondary contribution to PM_{2.5} production.

The predicted secondary pollutant impacts from the Allendale County hypothetical source are summarized in Table G.3 (below).

Table G.3 PSD CLASS II SECONDARY IMPACTS TO PM_{2.5} FOR HYPOTHETICAL SOURCE IN ALLENDALE COUNTY ⁽¹⁾					
Primary Pollutant		Hypothetical Source		Secondary Impact (µg/m³)	
		Emissions (TPY)	Stack Height (m)	NO_x	SO₂
PM_{2.5}	24-hour	500	90	0.0274	0.1434
	Annual	500	90	0.0014	0.0059
1) The secondary impacts are the maximum concentrations from EPA modeling of the hypothetical 500 TPY source with 90 m stack height.					

Table G.4 (below) shows the calculations for total secondary PM_{2.5} project impact.

Table G.4					
PM _{2.5} PROJECT SECONDARY IMPACT ANALYSIS - EPA HYPOTHETICAL MODELING (MERPs)					
Secondary Pollutant			PM _{2.5}		Units
			24-hour	Annual	
NO _x	Emissions	Project ⁽¹⁾	629	629	TPY
		Hypothetical Source ⁽²⁾	500	500	TPY
		(A) Project / Hypothetical Source	1.258	1.258	None
	Secondary Impact	(B) Hypothetical Source ⁽²⁾	0.0274	0.0014	µg/m ³
		(C) Project ⁽³⁾	0.034	0.002	µg/m ³
SO ₂	Emissions	Project ⁽¹⁾	60	60	TPY
		Hypothetical Source ⁽²⁾	500	500	TPY
		(D) Project / Hypothetical Source	0.12	0.12	None
	Secondary Impact	(E) Hypothetical Source ⁽²⁾	0.1434	0.0059	µg/m ³
		(F) Project ⁽³⁾	0.017	0.001	µg/m ³
		Total Secondary PM _{2.5} Project Impact ⁽⁴⁾		0.05	0.003
1) Per Table A.1					
2) Per Table G.3					
3) For NO _x , (A) x (B); for SO ₂ , (D) x (E)					
4) (C) + (F). This is added to the primary modeled PM _{2.5} project impact in Table B.1.					

G.1.b. Ozone

While the facility will not directly emit ozone, the proposed project will result in NO_x and VOC (precursors of ozone) project emission increases above the PSD SER as shown in Table A.1.

Thus, secondary ozone impacts from the proposed PSD project were included in the comparison to the appropriate ozone SIL as shown in Table B.1. The MERPs method combines the impacts of NO_x and VOC project-only emission increases to determine the total secondary contribution to ozone production as it relates to the EPA-recommended 8-hour SIL.

Tables G.5 and G.6 (below) show the MERPs method of calculating total secondary 8-hour ozone project impact using NO_x and VOC emissions from this project.

Table G.5 PSD CLASS II SECONDARY IMPACT (CONTRIBUTION) TO OZONE PRODUCTION FOR HYPOTHETICAL SOURCE IN ALLENDALE COUNTY ⁽¹⁾					
Pollutant		Hypothetical Source		Secondary Impact (ppb)	
		Emissions (TPY)	Stack Height (m)	NO _x	VOC
Ozone	8-hour	500	90	2.876	0.0116
1) The secondary impacts are the maximum concentrations from EPA modeling the hypothetical 500 TPY source with 90 m stack height.					

Table G.6				
OZONE PROJECT SECONDARY IMPACT ANALYSIS - EPA HYPOTHETICAL MODELING (MERPs)				
Secondary Pollutant			Ozone	Units
			8-hour	
NOx	Emissions	Project ⁽¹⁾	629	TPY
		Hypothetical Source ⁽²⁾	500	TPY
		(A) Project / Hypothetical Source	1.258	None
	Secondary Impact	(B) Hypothetical Source ⁽²⁾	2.876	ppb
		(C) Project ⁽³⁾	3.621	ppb
VOC	Emissions	Project ⁽¹⁾	134	TPY
		Hypothetical Source ⁽²⁾	500	TPY
		(D) Project / Hypothetical Source	0.268	None
	Secondary Impact	(E) Hypothetical Source ⁽²⁾	0.0116	ppb
		(F) Project ⁽³⁾	0.003	ppb
Total Secondary Project Impact to Ozone ⁽⁴⁾			3.62	ppb
1) Per Table A.1				
2) Per Table G.5				
3) For NOx, (A) x (B); for VOC, (D) x (E)				
4) (C) + (F). This is shown in Table B.1 to compare to the ozone SIL value.				

G.2. CLASS II NAAQS

G.2.a. PM_{2.5}

Since the project emissions used in the Class II SIL modeling are the same as those used in the Class II NAAQS analysis, the total secondary project impact from Table G.4 above should also be used for Table B.4 (Class II Full Impact Analysis – NAAQS).

G.2.b. Ozone

Since the project emissions used in the Class II SIL analysis are the same as those used in the Class II NAAQS analysis, the total secondary project impact from Table G.6 above should also be used for Table B.4 (Class II Full Impact Analysis – NAAQS).

G.3. CLASS II Increment (PM_{2.5} only)

While secondary impacts from existing sources are accounted for within applied background concentrations in NAAQS analyses, ambient background is NOT included in the PSD Increment analysis. Thus, it is necessary for the facility to address secondary formation from NO_x and SO₂ (as appropriate) from existing facility and off-property emissions using an alternative method, i.e., MERPs.

However, no additional secondary impact analysis was conducted for offsite sources. This is because this project will set the MSBD for PM_{2.5} for Anderson County, and no offsite sources were included in the increment modeling. Thus, the same secondary impacts for the project sources, shown in Table G.4, were added to the modeled concentrations in Table B.6.

G.4. CLASS II – ADDITIONAL IMPACT ANALYSIS – SOILS & VEGETATION

G.4.a. PM_{2.5}

Since the project emissions used in the Class II SIL modeling are the same as those used in the Class II Soils and Vegetation analysis, the total secondary project impact from Table G.4 above should also be used for Table C.1 (Soils and Vegetation Analysis).

G.4.b. Ozone

Since the project emissions used in the Class II SIL analysis are the same as those used in the Class II Soils and Vegetation analysis, the total secondary project impact from Table G.6 above should also be used for Table C.1 (Soils and Vegetation Analysis).

G.5. CLASS I SIL (PM_{2.5} only)

Project emissions are greater than the respective SER threshold for PM_{2.5}, SO₂, and NO_x as shown in Table A.1. As a result, both the primary project emission impacts (modeled using AERMOD/CALPUFF) and secondary PM_{2.5} project emission impacts (calculated using MERPs) are combined and compared to the appropriate PM_{2.5} Class I SIL as shown in Table D.1.

Distance-weighted MERPs - For Class II modeling purposes, the air quality modeling analysis is performed for “ambient air” locations at and beyond the project facility fence line. For this reason, the highest concentrations at any distance from the hypothetical facility are typically most suitable for Class II project secondary impact calculations. Since a Class I Area (and related Class I receptors) may be rather distant from the project location, the secondary impacts calculated for any distance from the facility may be too conservative. For this reason, distance-weighted MERPs from EPA’s hypothetical source modeling can be used to refine the secondary impacts for Class I area analyses.

The project location is 101 km from Shining Rock NWA, which is the closest Class I Area to the facility. Thus, distance-weighted MERPs were used to compute secondary impacts at a range of 100 km to conservatively represent the secondary impacts at those Class I areas. The data and calculations are shown in Tables G.7 and G.8 (below).

Table G.7 PSD CLASS I SECONDARY – DISTANCE WEIGHTED – IMPACTS TO PM _{2.5} FOR HYPOTHETICAL SOURCE IN ALLENDALE COUNTY ⁽¹⁾					
Primary Pollutant		Hypothetical Source		Secondary Impact (µg/m³)	
				Distance = 100 km	
		Emissions (TPY)	Stack Height (m)	NOx	SO ₂
PM _{2.5}	24-hour	500	90	0.0202	0.0796
	Annual			0.0010	0.0024
1) The secondary impacts are the maximum concentrations from EPA modeling the hypothetical 500 TPY source with 90 m stack height at a distance of 100 km.					

Table G.8					
PM _{2.5} PROJECT SECONDARY IMPACT ANALYSIS - EPA HYPOTHETICAL MODELING (MERPs)					
FOR DISTANCE = 100 KM					
Secondary Pollutant			PM _{2.5}		Units
			24-hour	Annual	
NO _x	Emissions	Project ⁽¹⁾	630	630	TPY
		Hypothetical Source ⁽²⁾	500	500	TPY
		(A) Project / Hypothetical Source	1.26	1.26	None
	Secondary Impact	(B) Hypothetical Source ⁽²⁾	0.0202	0.0010	µg/m ³
		(C) Project ⁽³⁾	0.025	0.001	µg/m ³
SO ₂	Emissions	Project ⁽¹⁾	60	60	TPY
		Hypothetical Source ⁽²⁾	500	500	TPY
		(D) Project / Hypothetical Source	0.12	0.12	None
	Secondary Impact	(E) Hypothetical Source ⁽²⁾	0.0796	0.0024	µg/m ³
		(F) Project ⁽³⁾	0.010	0.0003	µg/m ³
Total Secondary PM _{2.5} Project Impact ⁽⁴⁾			0.04	0.001	µg/m ³
1) Per Table A.1					
2) Per Table G.7					
3) For NO _x , (A) x (B); for SO ₂ , (D) x (E)					
4) (C) + (F). This is added to the primary modeled PM _{2.5} project impact in Table D.1.					

MODELING HISTORY			
Date	By	Reason	Description
Current	SWS	PSD C/P	Analyses for PSD Class II (SIL, NAAQS, Increment & Soils/Vegetation) and Class I (SIL & AQRV screening) were performed. Otherwise, Std 2: compliance was shown using a combination of PSD Class II and SIL results for all pollutants & averaging periods except lead, for which the facility-wide emissions are < the exemption rate. Std 8: All combustion emissions are exempt (burning virgin fuel); a de minimis analysis was done for 5 toxics (process emissions).