Prevention of Significant Air Quality Deterioration Review

Final Determination

June 5, 2024

Facility Name: Yates Steam-Electric Generating Plant
City: Newnan
County: Coweta
AIRS Number: 04-13-077-00001
Application Number: TV-802465
Date Application Received: December 8, 2023

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

Jim Boylan – Chief, Air Protection Branch

Stationary Source Permitting Program

Steve Allison
Cynthia Dorrough
Renee Browne

Planning & Support Program

Byeong-Uk Kim
Ryan Gallagher

BACKGROUND

On December 8, 2023, Yates Steam-Electric Generating Plant (hereafter Plant Yates) submitted an application for an air quality permit to construct three (3) advanced class, dual-fuel simple-cycle combustion turbine (CT) units. The facility is located at 708 Dyer Rd in Newnan, Coweta County. The proposed project will include construction of the proposed CT units and will include installation of new associated equipment, such as an emergency generator, an emergency fire water pump engine, and three fuel gas heaters.

On March 28, 2024, the Division issued a Preliminary Determination stating that the modifications described in Application No. TV-802465 should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the modified equipment.

The Division requested that Plant Yates place a public notice in a newspaper of general circulation in the area of the existing facility notifying the public of the proposed construction and providing the opportunity for written public comment. Such public notice was placed in *Newnan Times-Herald* (legal organ for Coweta County) on April 3, 2024. The public comment period expired on May 3, 2024. Additionally, a public hearing was held by the Division on May 3, 2024 to receive comments.

During the comment period, comments were received from the public, Georgia Power, the Environmental Protection Agency (EPA) and the Southern Environmental Law Center (SELC).

A copy of the final permit is included in Appendix A. A copy of written comments received during the public comment period is provided in Appendix B. A copy of the updated modeling memo is provided in Appendix C.

GEORGIA POWER – PLANT YATES COMBUSTION TURBINE ELECTRIC GENERATING FACILITY COMMENTS

Comments were received from Jon E. Bandzul, Air Programs Manager, by letter on May 5, 2024.

Comment 1

Georgia Power appreciates the opportunity to provide comments on the draft permit for Plant Yates Units 8, 9, and 10.

Georgia continues to be one of the fastest growing states in the country and, with 10's of thousands of jobs and billions in investments coming into the state in the next decade, the state's energy needs are projected to increase significantly. Considering both the significant increase in the state's energy needs and the expedited timeframe in which the energy will be needed, we are acting to meet Georgia's energy needs with a diverse portfolio of generating resources, including battery energy storage systems, natural gas plants, power purchase agreements, and distributed energy resources. The addition of the state-of-the-art Units 8, 9, and 10 at Plant Yates is one key part of our plan.

On December 8, 2023, we filed an application for the construction of Units 8, 9, and 10 at Plant Yates. As part of the Prevention of Significant Deterioration (PSD) review process, we demonstrated that construction and operation of the project would not cause or contribute to an exceedance of the 2012 annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) because the modeled project impact is less than the significant impact level (SIL), and because the difference between the background concentration and the NAAQS is greater than the SIL value. A similar analysis was performed for the Class I PSD Increment.

As you know, the revised primary annual $PM_{2.5}$ NAAQS of 9 $\mu g/m^3$ became effective on May 6, 2024. On April 30, 2024, EPA issued updated guidance on the recommended SIL values for the revised standard and the Class I PSD increment. The new Class I and II SIL values are 0.03 $\mu g/m^3$ and 0.13 $\mu g/m^3$, respectively. Our application continues to demonstrate our project will not cause or contribute to any exceedances of any NAAQS or PSD increments since the maximum modeled impacts were well below the new recommended SIL in both cases.

EPD Response

Other commenters asked EPD to reconsider whether Plant Yates Units 8-10 will cause or contribute to an exceedance of the annual $PM_{2.5}$ NAAQS now that the standard has been lowered from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$. The permit application filed on December 8, 2023, contained sufficient information to address that question.

As commenters recognize, the permit application already demonstrates that the maximum potential impact of the project on annual ambient $PM_{2.5}$ concentrations will be no more than 0.0802 $\mu g/m^3$ based on dispersion modeling results and other analyses that account for both direct emissions and secondary formation of $PM_{2.5}$. Commenters also recognize that a maximum impact

of 0.0802 µg/m^3 is well below the new Significant Impact Level ("SIL") of 0.13 µg/m^3 recommended by EPA for the new 9.0 µg/m^3 NAAQS via guidance issued on April 30, 2024.

The Division has updated the modeling memo according to EPA's latest standards and agrees with the commenter's findings.

SELC COMMENTS

Comments were received from SELC on behalf of itself, Environment Georgia, Georgia Interfaith Power & Light, the Sierra Club, and the Southern Alliance for Clean Energy, Mothers & Others For Clean Air, Decatur Cares About Climate, Dogwood Alliance, and Concerned Citizens of Cook County (hereafter, the "Commenters"). The letter was received on May 3, 2024, and was signed by Jennifer Whitfield, Senior Attorney, and Peter Slag, Associate Attorney.

Please refer to Appendix B to view the entire comments. EPD will only address the comments relevant to the draft permit and application below.

Comment 1a

EPD must require Georgia Power to disclose the make and model of the units it seeks to permit and details about the catalyst pollution control technologies it intends to use.

EPD Response

The facility checked Box 11 of the Application indicating that confidential information was being submitted in the application, and the guidelines were followed in the Division's "Procedures for Requesting that Submitted Information be treated as Confidential". As such, the make and model no. were treated as confidential and were not made available to the public.

Georgia Power's permit application—both public and confidential versions—contained all the information needed to fully evaluate the potential emissions from the new generating units and the measures that will be used to control those emissions. The public version of the application was initially redacted to maintain the confidentiality of the make and model of the units, in accordance with state and federal law, to protect then-ongoing commercial negotiations. Those negotiations have now been completed. Georgia Power publicly disclosed the redacted information on January 31, 2024, by indicating that Plant Yates Units 8-10 will be advanced class Mitsubishi 501 JAC simple-cycle combustion turbines.[1] However, the redaction of that information from the permit application did not hinder EPD's or the public's review because the make and model of a unit is not necessary to evaluate the nature and extent of emissions, and all emissions related information was readily available in the public version of the permit application filed on December 8, 2023.

[1] See Georgia Power Company's Application for Certification of Plant Yates Units 8-10 (Public Disclosure) in Docket No. 55378, publicly available online at https://psc.ga.gov/searchfacts-document./?documentId—217280.

Commenters also assert that the application failed to include the name of the vendor and the minimum operating temperature of the catalytic control technologies, but those comments are irrelevant. Like the make and model of the unit, the vendor of a control device is not necessary in determining expected emission reductions, nor in establishing Best Available Control Technology ("BACT"). While we maintain the that name of the vendor is not an "important pollution control feature" as commenters contend, the catalytic control technologies for Plant Yates Units 8-10 will be provided by Mitsubishi. Although commenters are correct that operating temperature can be relevant in determining whether a control device will function properly, commenters are incorrect that this information was missing. The expected range of actual operating temperatures for the emission controls were provided in the application as required. This information included operating temperatures corresponding to the Minimum Emission Compliance Level ("MECL") across a range of ambient and operating conditions and the minimum operating temperatures for the catalyst technologies will be lower than those corresponding to the MECL.

Commenters also appear to incorrectly suggest two different MECLs may be needed in light of the two different catalytic controls to be installed. To clarify, the MECL is the load at which the units will be capable of achieving all applicable limits, not just one, so there will be only one MECL for each unit. The MECL for each CT is not yet identified because it will be established using actual measured data recorded by CEMS or compliance testing, as required by the draft permit. However, the permit application already provides expected emission performance for all pollutants at MECL for various ambient conditions, see Appendix C, Tables C-3 (natural gas) and C-4 (distillate oil).

Comment 1b

The Draft Permit accepts and incorporates Georgia Power's faulty BACT analysis, which fails to demonstrate sufficient support for its limited proposed pollution controls - both control devices and emissions limits in the Draft Permit.

A. The BACT analysis in the application improperly disregards more effective control technologies that have been permitted at similar facilities. The Draft Permit incorporates control devices and emissions limits based on the application's faulty analysis. EPD must require that feasible and cost-effective control technologies employed at similar facilities are considered in BACT analysis.

B. The use of gas as the only primary fuel at the proposed facility constitutes a control technology that should be required by a proper BACT analysis.

C. EPD must consider the economic resources available to the applicant, builder, and operator of the proposed facility, Georgia Power Company.

EPD Response

The facility has responded to comments that assert deficiencies in the BACT determination as follows:

Contrary to the comments, the application clearly demonstrates that the proposed BACT determinations satisfy Clean Air Act requirements.

Comments submitted by SELC state:

> The BACT limit proposed for NOx, PM, CO, and greenhouse gases are all substantially higher than other BACT determinations without any explanation provided to justify this significant deviation. Numerous CTs have been held to significantly more stringent air pollution standards.
>
> The BACT determination for PM is particularly flawed. There is no explanation provided for these turbines being permitted to emit almost twice as much PM, for example, as other turbines used across the country.

The comments do not contain any details, references, footnotes or any other factual support for these claims. As demonstrated in the tables below, the proposed BACT limits are identical to, consistent with, or lower than the most stringent emission limitations that have been achieved by the only large frame (H- and J-frame) advanced class simple-cycle combustion turbines in commercial operation or under full-scale development testing today: Canal Generating Station Unit 3 (General Electric 7HA.02) (Canal 3), originally developed and permitted by NRG Energy in 2017, and the Siemens Energy test facility located at the Duke Lincoln County Turbine Station ("LCTS"), permitted in 2018.

	Natural Gas		Distillate Oil	
	Plant Yates 8-10, each	Canal 3	Plant Yates 8-10, each	Canal 3
NOx[2]	2.5 ppm	2.5 ppm	5.0 ppm	5.0 ppm
CO	3.5 ppm	3.5 ppm	5.0 ppm	5.0 ppm
PM	0.006 lb/MMBtu	0.0073 lb/MMBtu	0.014 lb/MMBtu	0.026 lb/MMBtu
GHG[3]	14,483,434 MMBtu	14,554,740 MMBtu	12,527,588 MMBtu	2,499,120 MMBtu[4]

	Natural Gas		Distillate Oil	
	Plant Yates 8-10, each	LCTS ES.19[5]	Plant Yates 8-10, each	LCTS ES-19
NOx	2.5 ppm	9-45 ppm	5.0 ppm	9-45 ppm
CO	3.5 ppm	4-10 ppm	5.0 ppm	4-10 ppm
PM	24.5 lb/hr	20.9 lb/hr	48.5 lb/hr	38 lb/hr
GHG	1,020,020 tons CO_2e	1,401,411 tons CO_2e	1,020,020 tons CO_2e	1,401,411 tons CO_2e

In addition to incorrectly claiming that BACT limits contained in the draft permit were higher than for comparable units, commenters state that the BACT analysis for PM incorrectly failed to consider baghouses and electrostatic precipitators, and that these controls can only be eliminated as BACT upon a showing that they are not cost-effective. As indicated in the application, these emission controls have no practical potential to reduce emissions from combustion turbines, given the low PM emissions from these units. See Section 5.2.4.2. The outlet performance specification of a typical baghouse or electrostatic precipitator is 0.01 gr/dscf[6]. Based on information provided

[2] The level of NOA performance proposed as BACT (2.5 ppm) for Canal 3 was found to be the Lowest Achievable Emission Rate ("LAER") for Canal 3.

[3] Note that the permit limit on the amount of distillate oil that can be burned at Canal 3 is not based on BACT. Rather it is intended to avoid applicability of the formaldehyde limit in the National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines in 40 CFR 63 Subpart YYYY (CT MACT) while the standards for gas-fired combustion turbines were stayed. Yates Units 8-10 will be equipped with an oxidation catalyst to ensure compliance with Subpart YYYY without a limit on distillate oil.

[4] This number is lower because the facility took a fuel oil limit to avoid the CT MACT.

[5] For LCTS ES. 19, the range of values reflects the different BACT limits that apply during the different phases of development • commissioning, testing, validation, and post-developmental operation - for each of three combustion turbine configurations for which full-scale testing is allowed to be performed. The facility's 2023 Annual Compliance Certification, submitted February 27, 2024, indicates that post-developmental operations have not yet begun.

[6] See North Carolina Division of Air Quality, Application Review for Siemens Energy test facility at Duke LCTS, Application No. 5500082.17A, dated June 20, 2018, pg. 31.

in Appendix C of the application, the total concentration of PM emissions, including condensables, from Plant Yates Units 8-10 is expected to range from 0.001 to 0.003 gr/dscf, depending on the fuel being utilized, which is nearly an order of magnitude lower than what these control options typically achieve. Accordingly, these controls need not be listed in Step I of the BACT analysis. However, even if listed in Step l, these control options would be eliminated as technically infeasible in Step 2 for the same reason—they have no real potential to reduce PM emissions from combustion turbines.[7]

Commenters incorrectly suggest that Georgia Power and EPD neglected to consider whether ESPs or baghouses would be appropriate when the units are firing oil by claiming Georgia Power's BACT analysis focused only on natural gas, not oil. Specifically, commenters quote Section 5.2.4.2. to claim that Georgia Power's BACT analysis for PM depends entirely on the conclusion that baghouse and ESPs have not been applied to "gas-fired combustion turbines." However, contrary to these comments, Georgia Power's BACT analysis fully considered both oil-firing and gas-firing in concluding that ESPs and baghouses are not warranted as BACT for PM for Yates CTs 8-10.

In particular, footnote 15 to Section 5.2.4.2, which commenters omit from their comment, discusses the low PM emissions from both natural gas and distillate oil.

Footnote 15 states:

"When EPA originally proposed national standards for CT units in NSPS Subpart GG, EPA stated that "particulate emissions from stationary gas turbines are minimal" and noted that add-on controls for PM are not typically installed on CT units and are cost prohibitive. See 44 Fed. Reg. 52792, 52798 (Sept. 10, 1979); EPA, *Standards Support and Envtl. Impact Statement Volume 1: Proposed Standards of Performance for Stationary Gas Turbines*, at 8-6 (Sept. 1977). Additionally, when EPA proposed to update the standards in NSPS Subpart KKKK, EPA declined to establish standards for PM because "…[PM] emissions are negligible with natural gas firing due to the low sulfur content of natural gas. Emissions of PM are only marginally significant with distillate oil firing because of the lower ash content…" 70 Fed. Reg. 8314, 8321 (Feb. 18, 2005). At the time, EPA also noted that no CT units permitted since 2003 utilized add-on controls."

Commenters also ask EPD to consider requiring Yates Units 8-10 to operate primarily on natural gas, with distillate oil only as a backup fuel, to satisfy BACT. In doing so, commenters point to two federal appeals court decisions that they claim support such a requirement. The first, Sierra Club v. EPA, decided by the 7th Circuit, holds that a power plant situated next to a coal mine producing high-sulfur coal need not consider the use of low-sulfur coal as BACT, given that the siting of the power plant at the mine mouth to use the coal it produced was an inherent part of the design of the unit, whereas low-sulfur coal would have to be transported across the country. The

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[7] See, for example, Washington County Power, LLC, Application No. TV.547905, dated February 25, 2021 Volume I - Construction Permit Application, Section 5.7, and related PSD Preliminary Determination, dated September 10, 2021 available online at https://gaepd.knack.com/psd-air-permits/#home/?view_6_page=4.

second, Helping Hands Tools v. EPA, decided by the 9th Circuit, similarly found that a power plant designed to burn biomass generated by a co-located lumber manufacturing facility for the purpose of making beneficial use of the wood byproduct need not consider the use of solar power or natural gas as BACT because that would involve a redesign of the unit.

Neither of these cases, both of which are focused on use of fuel produced by a co-located source, provides support for a determination that use of natural gas as a primary fuel is BACT for Units 8-10. In fact, the two-part test set out in the 9th Circuit's decision actually leads to the opposite conclusion. The first part of the test, as articulated by the commenters, is to define the proposed facility's basic design. The advanced class, simple-cycle CTS proposed for Units 8-10 are designed to be dual-fuel units, equally capable of burning natural gas or distillate oil, to provide reliability and resiliency benefits to customers. The second prong is to take a "hard look" at what elements of the facility can be altered to reduce pollutant emissions without disrupting the applicant's basic business purpose. In the case of Yates Units 8-10, the basic business purpose of the units, as made plain in the permit application, is to provide flexible support for renewables as well as peaking power when needed during a period when Georgia's demand for energy is projected to grow rapidly. Georgia Power is investing in these new generating resources to ensure that it can serve these needs, and, as a result, Georgia Power has chosen dual-fuel simple-cycle CTS for their ability to be quickly dispatched on available fuels. Georgia Power intends to use natural gas whenever available but must preserve the flexibility to dispatch these units on oil if natural gas is unavailable.

Finally, commenters claim that "even for natural gas combustion, the BACT at 2.5 ppm is significantly greater than control technology determinations for numerous other simple cycle CTS, typically set at 2 ppm," citing to a 2022 memo on CT NOx controls prepared by Sargent & Lundy. Georgia Power believes commenters may be referring to the following excerpt from the report:

Almost all new combustion turbine facilities, whether simple cycle or combined cycle, require an SCR system in conjunction with a combustion technology (DLN or water/steam injection) in order to meet stringent NOx emission rates. Based on data from the Clean Air Market Database (CAMD), 80% of combined cycle facilities implement an SCR system compared to 10% of simple cycle units. A combination of SCR with combustion control technologies can achieve levels as low as 2 ppm (0.002 lb/MMBtu) of NOx with 2-5 ppm of ammonia slip, which is currently considered Lowest Available Emission Rate (LAER) for combined cycle units.[8]

Although this excerpt states that SCR is needed for both simple-cycle and combined-cycle CTS to meet low NOx emission rates, it does not state that SCR on simple-cycle units could achieve levels as low as 2 ppm; it only says SCR can achieve "levels as low as 2 ppm... which is currently considered LAER for combined cycle units". Georgia Power's review of the RBLC clearinghouse, as well as the NOX BACT applied to the Canal and Lincoln units summarized above, did not reveal any instances of 2 ppm NOx limits being applied to simple-cycle units like the ones planned for Yates Units 8-10.

[8] The portion of the S&L report quoted also contains a mathematical error - 2 ppm does not equate to 0.002 lb/mmbtu. Instead, properly converted, 2 ppm equate to approximately 0.007 lb/mmBtu.

Furthermore, an exhaustive search of data available for simple-cycle CTS in EPA's Clean Air Markets Program Data ("CAMD") database has been performed to identify units with actual NOx emissions consistently below 2ppm. Based on our review of data available for 431 units from the last 10 years, only Middletown Power LLC Units 1215 have achieved monthly average NOx emissions lower than 2 ppm at least 30 percent of the time. However, these units are far smaller than Yates Units 8-10 and a completely different design (aeroderivative), and the BACT limit imposed on them is still 2.5 ppm. Therefore, Plant Yates 8-10 will be subject to the same BACT limit as the best performing units in the country, despite the fact that those units are smaller and of a completely different design. Commenters provide no evidence to the contrary.

As mentioned in the preliminary determination, in addition to reviewing the permit application and supporting documentation, the Division has performed independent research of the NOx BACT analysis and used the following resources and information:

- USEPA RACT/BACT/LAER Clearinghouse[9]
- Final/Draft Permits and Final/Preliminary Determinations for similar sources

The same resources have been utilized in preparing the Division's PM_{10}, CO, Greenhouse Gases, H_2SO_4 and VOC BACT analyses. The RBLC data was examined for the last ten years for simple cycle combustion turbines.

The Division agrees with the proposed BACT limits for normal operation. To account for emissions due to startup, shutdown or malfunction, the Division has decided to include the facility requested limits of tons of Pollutant emissions (12 consecutive month average) firing natural gas or fuel oil from each of the combustion turbines (Source Codes: CT8-CT10).

Comment 2a

The Permit Application does not provide sufficient information about the purpose and primary operations of the proposed facility regarding support for renewable resources, startup and shutdown frequency, and fuel supply.

Commenters suggest that the permit application and draft permit do not provide sufficient information regarding the purpose and operation of the units, but Georgia Power has provided ample information about the purpose to be served by the units—namely, "to support the integration of intermittent, weather-dependent renewable resources and to provide peaking power." (See Section 5.2.6.2 of the application.) To accomplish that purpose, Georgia Power plans to operate Plant Yates Units 8-10 on natural gas, relying on distillate oil when natural gas pipeline capability is constrained, such as during peak winter and summer periods. Commenters object to references that characterize both of these fuels as "clean fuels," but such comments are inconsistent with EPA regulations, which characterize both natural gas and distillate oil as "clean fuels" in the Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units in 40 CFR 60, Subparts TTTT, and in the Mercury and Air Toxics Standards (MATS) in 40 CFR 63, Subpart

[9] http://cfpub1.epa.gov/rblc/htm/bl02.cfm

UUUUU. EPA also refers to both of these fuels as “lower-emitting fuels” in Subpart TTTTa, which was published in the Federal Register on May 8, 2024, but is not yet effective.

Commenters express concern about the level of emissions associated with firing distillate oil in the CTS. However, as required, the application estimates and evaluates potential emissions from the proposed CTS utilizing either fuel. Accordingly, the application includes estimates that assume the units ran entirely on distillate oil at the same capacity factor used to estimate emissions from operation of the units on natural gas. This estimation does not indicate that equivalent amounts of distillate oil and natural gas will actually be used to operate the CTS, but it provides a conservative approach for estimating maximum allowable emissions for the air quality modeling analysis.

Commenters assert that the application assumes that there will be "relatively few" startups and shutdowns based on the information provided in the application and suggest this is inconsistent with the stated purpose of these units to serve as flexible operating resources to meet peak demand and support renewables in Georgia Power's fleet. This comment is incorrect because, in this respect, the application conservatively assumes 300 startups and shutdowns per year, regardless of which fuel is burned. For example, Appendix C, Table C- I lists 160 annual hours of startup for natural gas and Table C-3 lists 32 minutes for each startup, which equates to 300 startups per year.

Similarly, Table C-2 lists 245 annual hours of startup for distillate oil and Table C-4 lists 49 minutes for each startup, also equating to 300 startups per year. These startup times are also included in the application narrative and draft permit. The assumption of 300 startups and shutdowns per year is consistent with expected use of the units to provide support for continued integration of renewable resources and the flexibility to provide peaking power when needed.

Comment 2b

Georgia Power has not demonstrated that Plant Yates will not cause or contribute to an exceedance of the new primary annual $PM_{2.5}$ NAAQS.

EPD Response

As noted above, the application continues to demonstrate the project will not cause or contribute to any exceedances of any NAAQS or PSD increments since the maximum modeled impacts were well below the new recommended SIL in both cases.

Comment 3

There are significant deficiencies in the air dispersion modeling analysis provided in the application. EPD must require sufficiently rigorous and accurate modeling to ensure that the facility will not cause NAAQS exceedances or other violations of air quality standards.

EPD Response

While commenters question the choice of meteorological data, background concentrations, and treatment of ozone and secondary PM impacts used in the air quality analysis for the permit

application, as well as the analysis of impacts to Class I areas, each of these aspects of the application is not only well-supported, but conformed to procedures approved by EPD in the Draft Modeling Protocol submitted on October 11, 2023, as well as recommendations made by EPA Region 4 on November 9, 2023 and EPD on November 30, 2023.

The conservative air quality analysis conducted in support of the permit application demonstrated that worst-case ambient conditions and worst-case potential emissions were accounted for. A load analysis was conducted as part of the PSD modeling analysis to demonstrate that the worst-case scenario was captured over a range of operating conditions including those that occur during startup and shutdown for all applicable averaging periods. The results showed that even these worse-case scenarios will not cause or contribute to an exceedance of any National Ambient Air Quality Standard ("NAAQS") or allowable PSD increment. The modeling analysis also confirms that air quality will remain well-protected even if the facility utilizes distillate oil at the same level projected for natural gas, a highly unlikely scenario. While the air quality analysis identified a cumulative impact that was approximately 90% of the 1-hour NO_2 NAAQS, as noted by commenters, the application indicates the result is primarily due to another off-site source in the inventory, not Plant Yates. (See footnote 4 to Table 8-3 of the application).

Georgia Power estimated the combined contribution to this modeled result from the proposed new and existing sources at Plant Yates to be approximately 0.0001 percent of the total impact identified. Since no exceedance was identified, and the project will contribute very little to the highest modeled result, further investigation was unnecessary.

Comment 4

The application uses poor quality data to estimate Hazardous Air Pollutant emissions, the most toxic class of pollutants that the proposed facility will produce.

EPD must require sufficiently accurate estimates of HAPs emissions in order to fully assess the public health threats posed by the proposed facility.

EPD Response

Commenters assert that the hazardous air pollutant ("HAP") emissions estimates for the proposed units are inherently flawed because they were based on AP-42 emission factors, and express concern that HAP emissions may have been underestimated. However, the use of these factors is intended to be conservative because they typically overstate emissions. Based on information provided by Georgia Power in response to EPA's recent Clean Air Act Section 114 request supporting its 8-year review of the CT MACT, emissions of HAP metals from oil-fired combustion turbines are orders of magnitude lower than the estimates derived using emission factors in AP-42. For example, test data submitted by Georgia Power for combustion turbines at Plants McDonough and McIntosh in response to the Section 114 request show actual emissions of arsenic,

selenium, and manganese (the largest HAP reported in the application), are likely over 300, 10, and 400 times lower than the AP-42 factors, would suggest respectively.[10]

In addition to relying on emission factors that overstated HAPs, Georgia Power's air quality analysis for HAPs is also conservative because it is based on uncontrolled emission rates, even though the units will be equipped with an oxidation catalyst that would be expected to reduce HAP emissions like formaldehyde. Even with these highly conservative assumptions, the results confirm that the draft permit for Plant Yates Units 8-10 will protect human health and the environment. For example, the maximum impacts of all organic HAP and HAP metals evaluated are approximately 250 and 10 times lower than what EPD considers acceptable, respectively. (See Table 10-2 in the application). And, if emissions of HAP metals were based on emissions factors derived from the above referenced test data, the maximum impacts of all HAP metals would be 100 times lower.

Commenters also question Georgia Power's reliance on the 91 ppb formaldehyde limit in Subpart YYYY, asserting that Georgia Power's permit application "simply assumes, with no basis," that the formaldehyde limit will be met at all times. They also claim that there is "no reason" to believe the limit will be met when the oxidation catalyst is not effective while the unit is operating at low loads during startup and load ramp-up/ramp-down. These comments are inaccurate for several reasons. First, Subpart YYYY formaldehyde limits do not apply during startup. See Subpart YYYY, Table l. Second, the formaldehyde limit in Subpart YYYY is a legally and practically enforceable limit - sources subject to the standard must demonstrate compliance with the limit through both an annual performance test and continuous monitoring of the operating temperature of the oxidation catalyst consistent with manufacturer specifications. See Subpart YYYY, Tables 2 and 3. Because the limit is practically enforceable, Georgia Power appropriately relied on it in determining potential HAP emissions from Yates Units 8-10. However, even if Georgia Power were to have relied on the AP-42 emission factors instead of the Subpart YYYY limit for formaldehyde, those factors would indicate concentrations of approximately 295 ppb and 110 ppb for gas and distillate oil combustion, respectively. Even at those levels, the maximum impacts of formaldehyde would still have been less than one percent of what EPD considers acceptable.

The Division agrees with the facility’s response concerning the HAP emissions.

[10] See publicly available reports containing test data at https://cfpub.epa.gov/webfire/reports/esearch.cfm. For example, average emissions of manganese measured while burning distillate oil in two simple cycle combustion turbines at Plant McIntosh were 1.83×10^{-7} lb/MMBtu, which is approximately 430 times lower than the estimated emissions using the AP 42 factor of 7.9×10^{-4} lb/MMBtu used in the application.

EPA COMMENTS

In an e-mail dated Friday May 3, 2024, EPA's Art Hoffmeister submitted comments regarding the proposed project to add three (3) simple cycle combustion turbines.

Comment 1

40 CFR 60 Subpart TTTTa, *Standards of Performance for Greenhouse Gas Emissions for Modified Coal-fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units*, became final on April 25, 2024. The proposed CTs are now subject to the standards of this subpart, as the BACT "floor" was established with the proposal of this rule on May 23, 2023, and now applies to units constructed on or after said date. *See* 40 CFR 60.1(b) adopted by reference in Georgia Rule 391-3-1-.02(8)(b) and 40 CFR 52.21(b)(12) adopted by reference in Georgia Rule 391-3-1-.02(7)(a)2.

40 CFR 60 Subpart TTTTa establishes standards based on the utilization of affected units: **low load** being less than or equal to 20 percent capacity factor, **intermediate load** being greater than 20 but less than or equal to 40 percent capacity factor, and **base load** being greater than 40 percent capacity factor. Given that the preliminary determination specifies that the proposed CTs will operate at a capacity factor of 41.5 percent, it appears that the proposed CTs will operate as base load units rather than peaking units based on Subpart 40 CFR 60 TTTTa. If this is indeed the case, then the dismissal of combined-cycle technology as potential GHG BACT on the basis that the;

"CT units cannot reasonably be operated as peaking units…" needs to be revisited. Permit documents also state that combined cycle turbines "cannot be constructed and operational in time to address GPC's capacity needs" without supporting documentation in the PSD application or preliminary determination for this statement. For the above reasons, the EPA does not necessarily agree that the position that use of combined cycle turbines would redefine the source is fully supported by the documentation provided in the permit record and recommends that combined cycle turbines be reconsidered as BACT.

EPD Response

The Division agrees that the facility will have to address these issues and further substantiate the use of simple cycle combustion turbines, clarify peaking versus base load operation, address greenhouse gases, redefining the source concept, and provide the further analysis after the effective date of 40 CFR 60 Subpart TTTTa as it was indicated in the preliminary determination.

The facility does not intend to operate Yates Units 8-10 as *base load combustion turbines*, as the term is defined in NSPS Subpart TTTTa. This misperception was caused by a change in the rule, between proposal and publishing the standards, that made the subcategory for such CTs no longer based on their design efficiency.

Commenters reference EPA's newly finalized rule establishing GHG performance standards for electric generating units (Subpart TTTTa) and ask Georgia Power to update its application to

address the standards and EPD to include conditions in the final construction permit to ensure compliance. However, the final rule will not be effective until 60 days after publication in the Federal Register, which will be July 8, 2024. Only after the rule becomes effective would it be appropriate for EPD to include specific compliance requirements in the permit. The Division agrees with the Commenters that the applicability date of Subpart TTTTa will be May 23, 2023 in accordance with 40 CFR 60.1(b). However, the Division does not agree that the facility is subject to the rule or that the standards in the rule may be used to inform other regulatory processes, such as a BACT determination, prior to the effective date of the rule on July 8, 2024.

As with any permit, additional requirements and permit conditions can be added once they become effective if, as here, they become effective after issuance of the permit. Moreover, the specific compliance requirements of new Subpart TTTTa will depend on the actual operating profile of the units once constructed, not the design of the units that that Georgia Power will be authorized to construct. Therefore, EPD remains authorized to issue the construction permit for the project and should not delay issuance to await effectiveness of the new rules that focus on operations, even though the need to revise the permit to incorporate these new requirements will soon arise.

Delaying issuance of the permit to evaluate the new climate rules is not only unnecessary, it would also be highly detrimental to the purpose of the project. As noted in Georgia Power's 2023 Integrated Resources Plan (IRP) Update, the magnitude and timing of the projected load that is being driven by economic growth requires Georgia Power to act now to secure the resources needed to continue to reliably serve our customers and meet our state's energy needs. Instead of delaying issuance of the construction permit to address new rules not yet effective, EPD should issue the final permit and, if deemed necessary, reopen the permit for cause to incorporate the new requirements. The regulations expressly contemplate this process and allow EPD and permittees to complete the reopening within 18 months of new regulations becoming effective, pursuant to Rule 391-3-1-.03 which is incorporated into Condition 8.11 of Plant Yates Title V permit. Issuance of the construction permit as currently drafted will not affect the ability of Yates Units 8-10 to comply with the new requirements once those requirements become effective and the new units become operational, particularly given that the actual operating profile of the units will determine the specific requirements that apply to the units under the new rule.

Despite the fact that the regulation is not yet effective, the following responses to commenters' questions are provided regarding the GHG emission rate from combustion of distillate oil based on the information currently available. As noted in the application, the emission rate of 162.84 lb/MMBtu for distillate oil is provided on a carbon-dioxide equivalent (CO_2e) basis. That value includes not only a factor for CO_2 emissions that would be regulated under the new Subpart TTTTa, but also additional emission factors reflecting the emissions of other GHGs, namely CH_4 and N_2O, to reflect the global warming potential of those emissions. Specifically, the CO_2e emission factor included in the permit application is based on: l) a CO_2 emission factor from 40 CFR Part 75, Appendix G; 2) emission factors for CH_4 and N_2O from 40 CFR Part 98, Table C-2; and 3) the current global warming potential for each pollutant listed in 40 CFR Part 98, Table A-I. This emission factor was designed to be consistent with those mandated for use in reporting mass emissions (i.e., tons or metric tons) under the Acid Rain Program and Mandatory Greenhouse Gas Reporting rule, and it is also intended for use in demonstrating compliance with CO_2e BACT as outlined in draft permit Conditions 6.2.27, 6.2.28, and 6.2.29.

Neither the emission factor provided for CO_2e nor the emission factor for CO_2 will affect the ability of the facility to comply with the new input-based standards. Instead of emission factors, compliance with Subpart TTTTa is demonstrated by limiting the CTS to combusting only natural gas and distillate oil, and compliance with that limitation is demonstrated by fuel purchase records for the permitted fuels, in accordance with 40 CFR 60.5520(d)(l) and 40 CFR 60.5525a, as referenced in Table I to 40 CFR Part 60, Subpart TTTTa.

Comment 2

There is a discrepancy regarding GHG BACT specified for the CTs; Table 4-6 of the preliminary determination specifies a limit of 1,024,830 tons per year of CO_2e (on a 12-month rolling total basis), however, condition 3.3.7c. of the draft permit specifies a limit of 1,020,020.

EPD Response

The Division agrees and will modify Table 4-6 of the preliminary determination to reflect the limit of 1,020,020 tons per year of CO_2e (on a 12-month rolling total basis) and to clarify the compliance determination method in Table 4-6.

Table 4-6: BACT Summary for the Combustion Turbines Greenhouse Gases – GHG Control

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
GHG	Good Combustion and Operating Practices, and Low Sulfur Fuels	14,483,434 MMBtu/hr, **1,020,020 tpy CO_2e** 12-month rolling total	monthly	Continuous Fuel Monitoring with emission factor calculations

GENERAL PUBLIC AND PUBLIC HEARING COMMENTS

Comments were received prior to and during the Public Hearing held on May 5, 2024. Please refer to Appendix B for all the comments received during the comment period.

Comment 1

In an e-mail dated Wednesday April 10, 2024, Citizen Robert Hinley III asks that the facility in making the modification, sound-proof, filter the air, and dispose of toxic waste as if you and your family live a mile away.

EPD Response to Comment 1

The Division shall issue an enforceable permit that adheres to the requirements of the Clean Air Act, federal regulations, and Georgia air quality regulations to assure that the facility will maintain its emissions to the standards required by federal and state regulations, and which will protect public health and the environment.

Comment 2

In an e-mail dated Friday May 3, 2024, Anne Mellinger-Birdsong, Pediatrician and Specialist in Environmental Health, encourages that the Division follow its statement in the Rules for Air Quality Control which states that: "EPD air pollution regulations can be made more stringent by the director in order to safeguard the public health, safety and welfare of the people of the State of Georgia." Another issue addressed was that the new $PM_{2.5}$ standard was not mentioned in the draft permit.

EPD Response to Comments 2

The new $PM_{2.5}$ standard has been addressed, and the modeling memo was updated. The emissions remain below the new standard as well as previously mentioned in this document.

Comment 3

In an e-mail dated Friday May 3, 2024, Dan Everett, has requested a delay of the permit issuance until further details of the pollution control devices are provided.

EPD Response to Comments 3

The facility has provided further and sufficient details of the combustion turbines and pollution control devices, and this has been incorporated into this document.

Comment 4

In an e-mail dated Thursday May 2, 2024, Benjamin T. Kopp, Pediatric Pulmonologist, urges the Division to consider tighter safety regulations for the proposed project.

Comment 5

In an e-mail dated Thursday May 2, 2024, Susanne Warrenfeltz, urges for clean air and lessening the effects of climate change by not granting the permit for burning methane and oil at the facility.

Comment 6

In an e-mail dated Thursday May 2, 2024, Amy Lee, states she and her husband are opposed to the plan to build three new oil and methane gas combustion turbines at the facility, and suggests investing in renewable energy sources to reduce pollution and improve the quality of life for all residents.

Comment 7

In an e-mail dated Thursday May 2, 2024, Laura Iyer, Founder and Director of the Southern Sustainability Institute, expressed concerns on the increased emissions at the facility, and the health risks associated with the increased emissions. She requests the Division reconsider issue of the permit and advocates for cleaner energy solutions.

Comment 8

In an e-mail dated Thursday May 2, 2024, Bette Holland, Director of the North Georgia Conservation Coalition does not want this permit allowed and states it will do even more to make the air dirtier and more unhealthy for people to breathe.

Overall EPD Response to Comments 4 - 8

The Division shall issue an enforceable permit that adheres to the requirements of the Clean Air Act, federal regulations, and Georgia air quality regulations to assure that the facility will maintain its emissions to the standards required by law and which will protect public health and the environment

Comment 9

In an e-mail dated Friday May 3, 2024, Andrew Massey, Vice President of Procurement, Bonnell Aluminum, supports the construction of the proposed project and considers this an addition of the important infrastructure in the Newnan area.

EPD Response

The Division duly notes this comment.

EPD CHANGES

Comment 1

UPDATED MODELING MEMO

On April 30th, 2024, the EPA set the new annual $PM_{2.5}$ SIL to 0.13 µg/m^3. The modeling memo was updated accordingly and is attached in Appendix C.

Comment 2

The Division has corrected Table 4-6 to reflect a limit of 1,020,020 tpy CO_2e (12-month rolling total), and to correct tpy BACT limit for CO_2e and to clarify the compliance determination method in Table 4-6 and Table 4-15.

The BACT selection for the Combustion Turbines is summarized below in Table 4-6:

Table 4-6: BACT Summary for the Combustion Turbines Greenhouse Gases – GHG Control

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
GHG	Good Combustion and Operating Practices, and Low Sulfur Fuels	14,483,434 MMBtu/hr, **1,020,020 tpy CO_2e** 12-month rolling total	monthly	Continuous Fuel Monitoring with emission factor calculations

Table 4-15. Proposed BACT Emission Limits and Compliance Demonstration Methods

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
Each Combustion Turbine	NOx	Natural gas	Clean fuels, DLN combustors, and SCR	2.5 ppmvd NO_X, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching	CEMS, 4-hour rolling average
		Distillate oil	Clean fuels, water injection, and SCR	5.0 ppmvd NO_X, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching	CEMS, 4-hour rolling average
		Both		168.3 tons NO_X or less	CEMS, 12-mo

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
				during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching	rolling average
	CO	Natural gas	Clean fuels, good combustion practices and oxidation catalyst	3.5 ppmvd CO, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching	CEMS, 4-hour rolling average
		Distillate oil		5.0 ppmvd CO, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching	CEMS, 4-hour rolling average
		Both		1,004.6 tons CO or less during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching	CEMS, 12-mo rolling average
	VOC	Natural gas	Clean fuels, good combustion practices and oxidation catalyst	2.0 ppmvd VOC, corrected to 15% O2	3-run stack test EPA Reference Method 25A
		Distillate oil			
	PM	Natural gas	Clean fuels	0.006 lb/MMBtu, or 24.5 lb/hr	3-run stack test EPA Reference Methods 5 and 202
		Distillate oil		0.014 lb/MMBtu, or 48.5 lb/hr	
	H_2SO_4	Natural gas	Clean fuels	Natural gas, 0.5 grains sulfur/100 scf	Fuel supplier documentation
		Distillate oil		Ultra-low sulfur distillate oil (15 ppm sulfur)	

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
	GHG	Both	Clean fuels, efficient design, and good combustion, operating, and maintenance practices	14,483,434 MMBtu and 1,024,830 tons per year CO2e, during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching.	Continuous Fuel Monitoring with emission factor calculations
Emergency Generator	NOx, CO, VOC, PM	Distillate oil	Tier 2 Engine	Comply with NSPS Subpart IIII	Comply with NSPS Subpart IIII
	GHG	Distillate oil	ULSD	Comply with NSPS Subpart IIII. Limit operating hour to 200 hr/yr, including 100 hrs/yr for maintenance checks and readiness testing, 50 hr/yr may be used in non-emergency service.	Comply with NSPS Subpart IIII
Fire Water Engine Pump	NOx, CO, VOC, PM	Distillate oil	Tier 3 Engine	Comply with NSPS Subpart IIII	Comply with NSPS Subpart IIII
	GHG	Distillate oil	ULSD	Limited to 500 hr/yr	Comply with NSPS Subpart IIII
Fuel Oil Storage Tank	VOC	Distillate oil	Submerged fill and light or reflective tank surface colors		Tank design
Each Gas Heater	NOx	Natural gas	Natural gas, good combustion practices, and ultra-low NO_X	9 ppmvd, corrected to 3% O_2, or 0.011 lb/MMBtu	Biennial tune-up

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
			burners		
	CO	Natural gas	Natural gas, good combustion practices	100 ppmvd, corrected to 3% O_2, or 0.074 lb/MMBtu	Biennial tune-up
	VOC	Natural gas	Natural gas, good combustion practices	20 ppmvd, corrected to 3% O_2, or 0.010 lb/MMBtu	Fuels records
	PM	Natural gas	Natural gas, good combustion practices	0.007 lb/MMBtu	Fuels records
	GHG	Natural gas	Natural gas, good combustion practices	Exclusive use of natural gas	Fuels records

APPENDIX A

AIR QUALITY PERMIT
4911-077-0001-V-05-2

APPENDIX B

WRITTEN COMMENTS
RECEIVED DURING
COMMENT PERIOD

APPENDIX C

MODELING MEMO DATED 5/1/2024