GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Jeffrey W. Cown, Director

Air Protection Branch
4244 International Parkway
Suite 120
Atlanta, Georgia 30354
404-363-7000

NARRATIVE

TO: Cynthia Dorrough

FROM: Taylor Crocker

DATE: October 2, 2023

Facility Name:	**Data Center Fulton, LLC**
AIRS No.:	121-00973
Location:	Atlanta, GA (Fulton County)
Application #:	28975
Date of Application:	August 4, 2023

Background Information

Data Center Fulton, LLC, is proposing to construct and operate a data center located at 200 Selig Drive SW, Atlanta, GA 30336. The facility will be located in Fulton County which defines a "major source" as any stationary source, or group of sources, that emits, or has the potential to emit, at least 100 tons per year of VOC or NOx with respect to Georgia Air Quality Control Rule 391-3-1-.03(8)(c)14(i) "Additional Provisions for Ozone Non-Attainment Areas". Sitewide NOx emissions from the data center has the potential to exceed the major source threshold of 100 tpy, therefore the facility is proposing to limit the total facility-wide consumption of diesel fuel to 927,643 gallons to meet a sitewide NOx emission limit of 99 tons per year. Thus, it will be considered a synthetic minor source with respect to provisions of Georgia Air Quality Rules 391-3-1-.03(8)(c)14(i) and 391-3-1- .03(10)(b)1(i).

Purpose of Application

App No. 28975, dated August 4, 2023, and received by the department on August 15, 2023, is proposing the construction and operation of a data center located in Fulton County, GA. The facility will include twenty-four [24] 3,000 kW diesel-fired emergency generators with a heat capacity of 30.1 MMBtu/hr and two [2] 1,000 kW diesel-fired emergency generators with a heat capacity of 9.5 MMBtu/hr. The emergency generators will provide backup power to servers and other electronic equipment in the event of a power outage at the facility. Public advisory expired on September 22, 2023, with no comments received.

Equipment List

Fuel Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
Group 1 (GEN-A1, GEN-B1, GEN-C1, GEN-D1, GEN-Z1, GEN-E2, GEN-Z2, GEN-	30.1	3,000 kW Diesel-Fueled Emergency Generator	2023	2024

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
E1, GEN-G1, GEN-F1, GEN-H1, GEN-C2, GEN-A2, GEN-I1, GEN-B2, GEN-J1, GEN-Z3, GEN-F2, GEN-D2, GEN-I2, GEN-G2, GEN-H2, GEN-J2, GEN-Z4)				
Group 2 (GEN-Y1 and GEN-Y2)	9.5	1,000 kW Diesel-Fueled Emergency Generator	2023	2024

Emissions Summary

Potential emissions from emergency generators (Groups 1 & 2) were calculated using emission factors provided by Cummins Power Systems for NO_X, CO, VOC, Filterable PM, and $PM_{10}/PM_{2.5}$ in Appendix 3 & Appendix 4 of the application. For SO_2 and HAPs, the emission factors derive from Tables 3.4-1, 3.4-3 and 3.4-4 in AP-42 3.4 *Large Stationary Diesel and All Stationary Dual-fuel Engines*. The total potential emissions of greenhouse gases (GHGs) were calculated using the sum of CO_2, CH_4, and N_2O emission factors taken from 40 CFR 98 Tables C-1 and C-2 for petrolatum products, specifically distillate fuel oil No. 2 as specified. The facility requested a facility-wide fuel limit of 927,643 gallons during any 12 consecutive month period, which limits facility-wide NOx emissions to 99 tons per year to be classified as a synthetic minor source. The facility also proposes to take a 200 hours/year per generator limit to avoid being subject to the emission standards of Georgia Rule (mmm).

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions
PM	3.90
$PM_{10}/PM_{2.5}$	4.35
NOx	99.90**
SO_2	0.10
CO	25.29
VOC	6.47
Max. Individual HAP	0.05
Total HAP	0.10
Total GHG (if applicable)	10,399

** based on a facility-wide fuel limit.

Regulatory Applicability

Georgia Rules

391-3-1.02 (2)(b) – Visible Emissions
Rule (b) limits allowable visible emissions from any air contaminant source to not exceed 40 percent opacity. This rule applies to sources that are subject to other emission limitations under 391-2-1-.02(2). Emergency generators (Groups 1 & 2) will be subject to this rule because the emergency generators are subject to Rule (g) and (mmm). The Permittee may comply with this limitation through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and renewable diesel fuel in the proposed generator engines.

391-3-1.02 (2)(g) – Sulfur Dioxide
Rule (g) limits all fuel burning equipment below 100 MMBtu/hr to burn no more than 2.5% fuel sulfur, by weight. Emergency generators (Groups 1 & 2) will be subject to this rule and the Permittee may comply with this limitation through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and renewable diesel fuel in the proposed generator engines.

391-3-1.02 (2)(mmm) – NOx Emissions from Stationary Gas Turbines and Stationary Engines Used to Generate Electricity
Rule (mmm) limits allowable emissions of NOx from any stationary engine used to generate electricity, whose capacity is greater than or equal to 100 kilowatts (kW) and is less than or equal to 25 megawatts (MW).

Stationary engines that meet the definition of an emergency criteria in 391-3-1-.02(2)(mmm)7 are not subject to the emission limits in this rule.

391-3-1-.02(2)(yy) – "Emissions of Nitrogen Oxides from Major Sources"

This rule applies to major sources of NO_X in a listed county. The facility is a major source located in Fulton County, one of the listed counties.

However, the emergency generators are subject to Georgia Rule (mmm) and in accordance with Georgia Rule 391-3-1-.02(yy)5, *"the requirements contained in this section shall not apply to individual equipment at the source which are subject to subsections (jjj), (lll), (mmm), or (nnn) of this section 391-3-1-.02(2)."* Therefore, for the purposes of determining Georgia Rule (yy) applicability, NOx emissions from any source subject to (mmm) is excluded from being factored into consideration for rule applicability and remaining sources NOx emissions are less than the 25 tpy threshold making the source not subject to Georgia Rule (yy).

Federal Rules

40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
This federal regulation applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) that commenced construction after July 11, 2005. Since the facility plans to commence construction of emergency generators (Groups 1 & 2) in 2024, emergency generators (Groups 1 & 2) are subject to this rule.

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This federal regulation establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. A stationary RICE is defined as any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. The facility is an area source for HAPs and therefore will be subject to this rule.

The emergency engines have a site rating greater than 500 HP and will be constructed after December 19, 2002, and are considered *new*. *New* stationary RICE located at an area source meet the requirements of this subpart by meeting the requirements of 40 CFR 60 Subpart IIII, per 40 CFR 63.6590(c)(1). No further requirements apply for the emergency engines under this subpart.

Permit Conditions

Condition 2.1 limits facility-wide consumption of diesel fuel to exceed 927,643 gallons during any 12 consecutive month period to avoid Part 70 requirements.

Condition 2.2 establishes the applicability of 40 CFR 60 Subpart A and IIII to the emergency generators in Group 1 & Group 2.

Condition 2.3 establishes the applicability of 40 CFR 63 Subpart A and ZZZZ to the emergency generators in Group 1 & Group 2.

Condition 2.4 lists the emission standards of 40 CFR 60 Subpart IIII, applicable to the emergency generators in Group 1 & Group 2.

Condition 2.5 limits the emergency and non-emergency hours of operation of the emergency generators (Source Code: EG001 through EG205), per 40 CFR 60 Subpart IIII.

Condition 2.6 limits the sulfur content and either the cetane index or aromatic content of the diesel fuel fired in the emergency generators in Groups 1 & 2, per 40 CFR 60 Subpart IIII and subsumes Rule (g).

Condition 2.7 outlines the criteria for the diesel fuel allowed to be fired in the emergency generators for emergency generators in Groups 1 & 2.

Condition 2.8 limits the opacity from the emergency generators per 40 CFR 60 Subpart IIII for emergency generators Groups 1 & 2 during acceleration mode, lugging mode, and any peaks in either the acceleration or lugging modes.

Condition 2.9 limits the total annual hours of operation of each emergency generator to not exceed 200 hours per generator during any twelve consecutive months and outlines the emission standard for engines that do not meet the requirements of an emergency standby engine according to Georgia Rule (mmm).

Condition 2.10 limits the opacity of the emergency generators, per Rule (b) unless otherwise specified.

Condition 2.11 requires the Permittee to comply with the emission standards by buying an engine certified to those standards, per 40 CFR 60 Subpart IIII.

Condition 3.1 requires the Permittee to comply with precautions to prevent fugitive emissions of air contaminants.

Condition 4.1 establishes emission standards for maintaining the emergency generators according to the manufacturer's specifications, unless otherwise permitted by the manufacturer.

Condition 5.1 requires the Permittee to verify that each shipment of diesel fuel oil received for combustion in each emergency generator is distillate oil, No. 2 fuel oil, No. 2 diesel fuel oil or very low sulfur diesel fuel oil and that the oil complies with the requirements of Condition 2.7

Condition 5.2 requires the installation of a non-resettable hour meter to record the hours of operation of the emergency generators and a system to record the hours the engines were operating in emergency and non-emergency use.

Condition 6.1 requires the Permittee conduct a performance test at any specified emission point when directed by the Division.

Condition 7.1 is the standard notification of startup condition.

Condition 7.2 requires the Permittee to demonstrate compliance with the applicable emission limits in Condition 2.4 by either purchasing engines certified according to 40 CFR Part 1039, for the same model year and maximum engine power and installed and configured according to the manufacturer's specifications or keeping records of performance test results for each pollutant for a test conducted on a similar engine or keeping records of engine manufacturer data indicating compliance with the standards.

Condition 7.3 requires the Permittee to maintain monthly operating records for each emergency generator (Group 1 & 2) in emergency and non-emergency service, as recorded on the non-resettable hour meter.

Condition 7.4 requires the Permittee to use monthly operating time data required by Condition 7.3 to calculate monthly the twelve-month rolling total of operating time for each of the emergency generators for each consecutive twelve-month period. If the facility exceeds 200 hours per generator per 12-consecutive month total, the Permittee must notify the Division within 15 days and demonstrate how they will comply with the emergency standby engine limit.

Condition 7.5 requires the Permittee to use monthly non-emergency service operating time records required by Condition 7.3 to calculate monthly the twelve-month rolling total of the non-emergency service operating time for each of the emergency generators for each consecutive twelve-month period. If the facility exceeds 100 hours per generator per 12-consecutive month total, the Permittee must notify the Division within 15 days and demonstrate how they will comply with the non-emergency hour limit per 40 CFR Subpart IIII.

Condition 7.6 requires the Permittee to keep records verifying that each shipment of diesel fuel received for firing in each emergency generator complies with the applicable requirements in Condition 2.6.

Condition 7.7 requires the Permittee to retain monthly records of all fuel burned in the emergency generators at the facility for five years after the date and year of record.

Condition 7.8 requires the Permittee to use monthly records to calculate the twelve-month rolling total of diesel fuel consumed in the facility. The Division should be notified if any of the twelve-month rolling totals of the fuel consumption equals or exceeds 927, 643 gallons during any twelve consecutive month period.

Condition 7.9 requires the submission of an annual report if the Permittee operates the emergency generators as specified in Condition 2.5.c.i.

Condition 7.10 requires the Permittee to maintain a copy of the manufacturer's written operating and maintenance instructions or operating and maintenance procedures developed by the Permittee that are approved by the engine manufacturer for the emergency generators.

Condition 7.11 requires the Permittee to demonstrate compliance with emission standards specified in 40 CFR 60, Subpart IIII for emergency generators (Groups 1 & 2) by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications.

Condition 7.12 requires the Permittee to keep records verifying that each shipment of diesel fuel oil received for firing the generators at the facility complies with the applicable requirements in Condition 2.6 and 2.7.

Condition 8.1 establishes the Division reserves the right to amend the provisions of this Permit pursuant to the Division's authority as established in the Georgia Air Quality Act and the rules adopted pursuant to this Act.

Condition 8.2 requires the Permittee calculate and pay an annual Permit fee to the Division in accordance with the "Procedures for Calculating Air Permit Application & Annual Permit Fees."

Toxic Impact Assessment

The combustion emissions from emergency generators proposed for this facility have the potential to emit Toxic Air Pollutants (TAPs) such as Benzene, Toluene, Xylene, Formaldehyde, Acetaldehyde, Acrolein, and Naphthalene. According to Georgia's Guideline for Ambient Impact Assessment of TAPs, further analysis is required for each TAP that has a facility-wide emission rate above the Minimum Emission Rate (MER) established in Appendix A of the guideline. All TAPs mentioned above are below the respective MER except for Benzene, which required further assessment.

A Toxic Impact Assessment was performed for Benzene using the USEPA's SCREEN3 modeling to evaluate the maximum 1-hour average impact. The applicant prepared a model run for a single emergency generator in each Group based on the engine at the site in that Group located nearest to the property line and an emission rate of 1 g/s for each engine. Benzene has both short-term (15-minute average) acceptable ambient concentration (AAC) and a long-term (annual average) AAC. Since the proposed generators will not be permitted to operate continuously throughout the year, separate short-term and long-term modeled benzene emission rates were developed. The long-term emission rate was evaluated based on the maximum impact from the Group 1 and 2 generators.

The SCREEN3 analysis shows that the representative Group 2 generator has dispersion characteristics that result in higher predicted impacts at the property line than the representative Group 1 generator. The long-term emission rate for the Group 1 generators was calculated assuming that the fuel remaining under the proposed facility-wide diesel fuel limit after the Group 2 generators operate at maximum rates is used by the Group 1 generators. The 15-minute modeled impact for the generators in Groups 1 & 2 is determined to

be 104.11 μg/m^3, which is well below the 15-minute AAC of 1,600 μg/m^3. The annual modeled impact for the generators in Groups 1 & 2 is determined to be 0.12 μg/m^3, which is below the annual AAC of 0.13 μg/m^3. Results of the assessment are included in Appendix 5 of Application No. 28975 and no further assessment was required for Benzene.

Summary & Recommendations

Based on the above considerations, I recommend issuing Permit 7374-121-0973-S-01-0 for the installation and operation of emergency generators in Groups 1 & 2 at Data Center Fulton, LLC. Public advisory expired on September 22, 2023, and there were no comments received. The facility is classified as a synthetic minor source status and the Mountain District (Atlanta) office will assume responsibility over compliance and receiving report submittals.