

NARRATIVE

TO: Cynthia Dorrough

FROM: Bradley Prinsen

DATE: 11/19/2024

Facility Name: **DCB Atlanta East, LLC**
AIRS No.: 247-00076
Location: Conyers, GA (Rockdale County)
Application #: 29442
Date of Application: September 26, 2024

Background Information

DCB Atlanta East, LLC proposes to construct and operate a data center to be located at 1726 Farmer Rd, Conyers, Georgia (Rockdale County). Construction began in October of 2024, with an expected final installation and operation date of November 2028. Rockdale County is currently designated as attainment for all classifiable criteria pollutants.

Purpose of Application

DCB Atlanta submitted Permit Application #29442, dated September 26, 2024, for the construction and operation of six new 3.0 MW emergency diesel generators (Source ID: EG01-EG06) at a proposed data center in Rockdale County. The facility will operate as a minor source with respect to Title V and PSD. A public advisory was issued due to the construction of new emissions units, and the public advisory period ended November 1, 2024.

Equipment List

Source Code	Capacity	Description	Installation Date	Applicable Requirements
EG01	3.0 MW	Caterpillar 3516E Emergency Diesel Generator	2025	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 40 CFR 60 Subpart A 40 CFR 60 Subparts IIII 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ
EG02	3.0MW	Caterpillar 3516E Emergency Diesel Generator	2025	
EG03	3.0MW	Caterpillar 3516E Emergency Diesel Generator	2025	
EG04	3.0MW	Caterpillar 3516E Emergency Diesel Generator	2026	
EG05	3.0MW	Caterpillar 3516E Emergency Diesel Generator	2027	
EG06	3.0MW	Caterpillar 3516E Emergency Diesel Generator	2028	

Emissions Summary

The following table is a summary of potential and actual emissions from the facility's emergency generators (Source ID: EG01-EG06). Emission calculations for the criteria pollutants are based off a maximum rated engine capacity/fuel usage of 4,023 hp-hr. Potential and actual emissions for all criteria pollutants, except SO₂, are calculated using manufacturer specification emission factors. Emissions for SO₂ are calculated using AP-42, Table 3.4-1 emission factors for diesel fuel.

The generators potential emissions are based off an individual engine run time of 200 hr/yr, and the expected actual annual emissions will be 10 hr/yr. The six emergency generators (Source ID: EG01-EG06) share the same engine capacity, therefore all individual engine calculations can be multiplied by the total number of engines (6) to find facility-wide PTE. The Division has confirmed that the facility's emission calculations are accurate. Examples of NO_x and SO₂ potential and actual emission calculations are provided below and match the results of the table.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions	Actual Emissions
PM/PM ₁₀ /PM _{2.5}	0.27/0.27/0.27	0.013
NO _x	29.93	1.50
SO ₂	2.93	0.15
CO	3.51	0.18
VOC	0.21	.011
Max. Individual HAP (Benzene)	.013	6.56E-04
Total HAP	.025	1.26E-03
Total GHG (if applicable)	2761.51	138.23

NO_x Potential Emissions (tpy):

$$\text{NO}_x \text{ Emission Rate (lb/hr/gen)} = \text{Fuel Usage (hp-hr/gen)} \times \text{Given NO}_x \text{ Emission Factor (lb/hp-hr)}$$

$$= 4,023 \text{ hp-hr/gen} \times 0.0124 \text{ lb/hp-hr}$$

$$= 49.885 \text{ lb/hr/gen}$$

$$\text{NO}_x \text{ PTE (tpy/gen)} = \text{NO}_x \text{ Emission Rate (lb/hr/gen)} \times 200 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= 49.885 \text{ lb/hr/gen} \times 200 \text{ hr/yr} \div 2000 \text{ lb/ton}$$

$$= 4.989 \text{ tpy/gen}$$

Total PTE NO_x Emissions= NO_x PTE (tpy/gen) × Number of Generators

$$= 4.989 \text{ tpy/gen} \times 6 \text{ Generators}$$

$$= \mathbf{29.934 \text{ tpy}}$$

NO_x Actual Emissions (tpy):

$$\text{NO}_x \text{ Actual Emissions (tpy/gen)} = \text{NO}_x \text{ Emission Rate (lb/hr/gen)} \times 10 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= 49.885 \text{ lb/hr/gen} \times 10 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= .249 \text{ tpy/gen}$$

$$\text{Total NO}_x \text{ Actual Emissions (tpy)} = \text{NO}_x \text{ Actual Emissions (tpy/gen)} \times \text{Number of Generators}$$

$$= .249 \text{ tpy/gen} \times 6 \text{ Generators}$$

$$= \mathbf{1.497 \text{ tpy}}$$

SO₂ Potential Emissions (tpy):

$$\text{SO}_2 \text{ Emission Factor (lb/hp-hr)} = .00809 \times (\% \text{ sulfur content in fuel oil})$$

$$= .00809 \times .15$$

$$= .001214 \text{ lb/hp-hr}$$

$$\text{SO}_2 \text{ Emission Rate (lb/hr/gen)} = \text{Fuel Usage (hp-hr/gen)} \times \text{SO}_2 \text{ Emission Factor (lb/hp-hr)}$$

$$= 4,023 \text{ hp-hr/gen} \times 0.0124 \text{ lb/hp-hr}$$

$$= 4.884 \text{ lb/hr/gen}$$

$$\text{SO}_2 \text{ PTE (tpy/gen)} = \text{SO}_2 \text{ Emission Rate (lb/hr/gen)} \times 200 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= 4.884 \text{ lb/hr/gen} \times 200 \text{ hr/yr} \div 2000 \text{ lb/ton}$$

$$= .488 \text{ tpy/gen}$$

$$\text{Total SO}_2 \text{ PTE} = \text{SO}_2 \text{ (tpy/gen)} \times \text{Number of Generators}$$

$$= .488 \text{ tpy/gen} \times 6 \text{ Generators}$$

$$= \mathbf{2.93 \text{ tpy}}$$

SO₂ Actual Emissions (tpy):

$$\text{SO}_2 \text{ Actual Emissions (tpy/gen)} = \text{SO}_2 \text{ Emission Rate (lb/hr/gen)} \times 10 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= 4.884 \text{ lb/hr/gen} \times 10 \text{ (hr/yr)} \div 2000 \text{ (lb/ton)}$$

$$= .0224 \text{ tpy/gen}$$

$$\text{Total SO}_2 \text{ Actual Emissions (tpy)} = \text{SO}_2 \text{ Actual Emissions (tpy/gen)} \times \text{Number of Generators}$$

$$= .0224 \text{ tpy/gen} \times 6 \text{ Generators}$$

$$= .147 \text{ tpy}$$

Regulatory Applicability**State Rules:**Georgia Rule 391-3-1-.02(2)(b) – “Visible Emissions”

This rule limits opacity to 40 percent from any air contaminant source, except as provided in other more restrictive or specific rules or subdivisions of the regulation. All of the permitted sources (Source ID: EG01-EG06) are subject to this regulation.

Georgia Rule 391-3-1-.02(2)(g) – “Sulfur Dioxide”

This regulation regulates the sulfur content of fuel. For a fuel burning source with a heat input capacity less than 100 MMBTU/hr, the regulation limits the fuel sulfur content to less than 2.5 percent, by weight. All six emergency generators (Source ID: EG01-EG06) are subject to this regulation.

Georgia Rule 391-3-1-.02(2)(yy) – “Emission of Nitrogen Oxides from Major Sources

This rule prohibits the emission of nitrogen oxides from any source to exceed 25 tons per year to all sources located in Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding and Rockdale counties unless such source has been approved by the Director as meeting the appropriate requirement for all reasonably available control technology (RACT) in controlling the emissions of nitrogen dioxides. Subsection (yy)5 states, “The requirements contained in this subsection shall not apply to individual equipment at the source which are subject to subsections (jjj), (lll), (mmm), or (nnn) of this section.” The Permittee is subject to Georgia Rule (mmm), therefore the units (Source ID: EG01-EG06) are not subject to Georgia Rule (yy).

GRAQC 391-3-1-.02(2)(mmm) – “NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

This rule limits emissions of NO_x from stationary gas turbines and stationary engines used to generate electricity whose nameplate capacity is greater than or equal to 100 kilowatts (KWe) and is less than or equal to 25 megawatts (MWe) to less than 80 ppm at 15% O₂, dry basis for stationary engines installed or modified on or after April 1, 2000. This regulation is applicable to the proposed emergency generator engines (Source ID: EG01-EG06).

DCB Atlanta East, LLC will be classified as a datacenter, therefore it is eligible for exemption from the NO_x emission standard in subparagraph 1 of this rule, if the Permittee meets all of the criteria outlined in (mmm)8.

- (i) Operate only for routine testing and maintenance, when electric power from the local utility is not available, or during internal system failures;
- (ii) Total annual operation for the engine is less than 500 hours per year;
- (iii) Operation for routine testing and maintenance during the months of May through September occurs only between 10 p.m. to 4 a.m. Operation for routine testing and maintenance during the months of January through April and October through December may be done during any time of day; and
- (iv) The facility maintains records of all operation, including the reason for the operation.

In the event the engines cannot meet the definition for emergency standby stationary gas engines as defined in (mmm)4, they are subject to the NO_x emission limitations of paragraph 1 of Georgia Rule (mmm).

Federal Rules:

Part 60, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR 60) New Source Performance Standard (NSPS) Subpart IIII – “Standards of Performance for Stationary Compression Ignition Internal Combustion Engines”

The following sources are subject to NSPS in 40 CFR 60 Subpart IIII:

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

- Manufactured after April 1, 2006, and are not fire pump engines, or
- Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

DCB Atlanta East, LLC will operate six compression ignition internal combustion engines (Source ID: EG01-EG06) manufactured after April 1, 2006, solely for use as emergency generators. Those compression ignition internal combustion engines will be subject to 40 CFR 60 Subpart IIII.

Part 63, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR 63) National Emissions Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines (RICE MACT)

The sources subject to NESHAP in 40 CFR 63 Subpart ZZZZ include all emergency engines (Source ID: EG01 – EG06).

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

- A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differs from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30 and is not used to propel a motor vehicle or a vehicle used solely for competition.
- A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.
- An area source of HAP emissions is a source that is not a major source.

The facility proposes to operate engines (Source ID: EG01-EG06) as emergency generators at a facility that has HAP emissions under the major source threshold, classifying it as an area source, therefore all of the emergency generators (Source ID: EG01-EG06) within the facility are subject to 40 CFR 63 Subpart ZZZZ.

In accordance with 40 CFR 63.6590(c), an affected source that meets any of the criteria in paragraphs (c)(1) through (7) of 40 CFR 63.6590 must meet the requirements of this part by meeting the requirements of 40 CFR 60 Subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

The emergency generators within the facility meet the criteria established by 40 CFR 63.6590(c)(1) because the generators are classified as a new or reconstructed stationary RICE located at an area source. The generators (Source ID: EG01-EG06) will demonstrate compliance with 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII.

Commercial emergency stationary RICE means “an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities”.

Permit Conditions

Permit Condition 2.1 limits opacity from the emergency generators to 40 percent to ensure compliance with Georgia Rule (b).

Permit Condition 2.2 prohibits the facility from firing any fuel oil other than diesel fuel in the emergency generators.

Permit Condition 2.3 limits the sulfur content of diesel fuel for the generators to 2.5 percent sulfur by weight in accordance with Georgia Rule (g).

Permit Condition 2.4 establishes operating limits for the emergency generators to the criteria outlined in rule (mmm)8. If the generators ever fail to meet the definition of emergency standby stationary gas engines defined in (mmm)4, then they are required to follow the NO_x emissions standards outlined in subpart (mmm)1(ii).

Permit Condition 2.5 requires the facility to fuel the emergency generators with distillate fuel oil that has a maximum sulfur content of 15 ppm and either a minimum cetane index of 40 or maximum aromatic content of 35 percent (by volume).

Permit Condition 2.6 requires the Permittee to comply with NSPS Subpart A and Subpart IIII for the operation of the compression ignition emergency generators.

Permit Condition 2.7 outlines the limits for diesel generators emissions of non-methane hydrocarbons and nitrogen oxides (NMHC+NO_x), hydrocarbons (HC), nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM) in accordance with 40 CFR 60 Subpart IIII.

Permit Condition 2.8 limits the accumulated maintenance and readiness time for the emergency generators to less than 100 hours per year of which up to 50 of the hours can be used for non-emergency use.

Permit Condition 2.9 prohibits the Permittee from discharging into or causing the discharge into the atmosphere from all compression ignition emergency generators, any visible emissions the opacity of which is equal to or greater than 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent during the peaks in either the acceleration or lugging modes per 40 CFR 89.113(a).

Permit Condition 2.10 requires the Permittee to comply with all applicable provisions of NESHAP Subpart A and Subpart ZZZZ for the operation of the emergency generators.

Permit Condition 3.1 requires the Permittee to take all reasonable precautions with any operation, process, handling, transportation or storage facilities to prevent fugitive emissions or air contaminants.

Permit Condition 4.1 requires the Permittee to operate the emergency generators according to the manufacturer's written specifications, instructions or procedures developed by the Permittee that are approved by the engine manufacturer over the entire life of the engine.

Permit Condition 5.1 requires the continuous operation of any continuous monitoring system required by the Division and installed by the Permittee except during calibration checks, zero and span adjustments or period of repair. Any maintenance performed on any continuous monitoring system should be conducted expeditiously.

Permit Condition 5.2 requires the Permittee to install a non-resettable continuous monitoring system for each emergency generator to track and record the cumulative hours of operation during emergency service as well as non-emergency service and to record the reason the generator was in operation.

Permit Condition 6.1 provides guidelines for performance and compliance testing.

Permit Condition 7.1 requires the Permittee to notify the division before startup.

Permit Condition 7.2 requires the maintenance and retention of hours of operation for emergency generators in the facility for both emergency and non-emergency service as recorded on the non-resettable hour meter.

Permit Condition 7.3 requires the Permittee to use the monthly emergency and non-emergency service operating data to calculate monthly, the twelve-month rolling total of the emergency and non-emergency service operating time for each generator during each twelve consecutive month period and notify the Division in writing within 15 days if any of the twelve month rolling total service operating time equals or exceeds 500 hours.

Permit Condition 7.4 requires the Permittee to retain fuel certifications for fuels combusted in all fuel burning equipment to verify compliance with Permit Conditions 2.3 and 2.5.

Permit Condition 7.5 requires the Permittee to use monthly non-emergency service operating data to calculate and record the twelve-month rolling total of the non-emergency service operating time for the emergency generators each consecutive twelve-month period. The Permittee must notify the Division within 15 days if the operating time of any generator equals or exceeds 100 hours.

Permit Condition 7.6 outlines compliance and record keeping requirements for the emission limits of Condition 2.7.

Permit Condition 7.7 requires the Permittee to keep a copy of the manufacturer's operating and maintenance instructions, or instructions approved by the engine manufacturer for the emergency generators.

Permit Condition 7.8 requires the Permittee to shall demonstrate compliance with the applicable emission standards in 40 CFR 60 Subpart IIII for the emergency generators.

Permit Condition 7.9 requires the Permittee to submit an annual report if the emergency generators are operated outside the specifications in 40 CFR 60.4211(f)(3)(i).

Permit Condition 8.1 grants the Division the right to amend the Permit as deemed necessary.

Toxic Impact Assessment

Due to the construction of new emissions units, the facility will produce several Hazardous Air Pollutants (HAPs). The facility compared potential emissions of hazardous air pollutants (HAPs) to their respective minimum emissions rates and concluded that there are no HAPs that require further screening. Potential to emit is calculated using AP-42 emission factors and assumes operating hours of 200 hours as worst case. The six emergency generators (Source ID: EG01-EG06) share the same engine capacity, therefore all individual engine calculations can be multiplied by the number of engines (6) to find Total PTE.

Table 1: Comparison of Facility-Wide Tap Emissions to Georgia MER

CAS Number	Pollutant Name	Expected Total (lb/yr)	Total PTE (lb/yr)	MER(1) (lb/yr)	PTE > MER (Y/N)
71432	Benzene	1.31	26.22	31.63	No
108883	Toluene	0.47	9.50	1,216,650.00	No
1330207	Xylene (o-, m-, p-isomers)	0.33	6.52	24,333.00	No
50000	Formaldehyde	0.13	2.67	267.00	No
75070	Acetaldehyde	0.04	0.85	1,107.15	No
107028	Acrolein	0.01	0.27	4.87	No
91203	Naphthalene	0.22	4.39	729.99	No

1. Georgia EPD, *Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions* (May 2017), Appendix A
2. Emissions factors taken from USEPA AP-42, Table 3.4-3 and 3.4-4 for diesel emergency generators
3. Break specific fuel consumption taken from AP-42 Table 3.3-1

The emission factor for each HAP is multiplied with the diesel gas usage in order to find the emission rate of each emergency generator. The emission rate is then multiplied by 10 hours to find the actual expected emissions and 200 hours to find potential emissions of each engine. As shown in Table 1 above, all HAPs remain below their respective MER, therefore a Toxic Impact Assessment is not required.

Summary & Recommendations

I recommend issuing Air Quality Permit No. 7374-247-0076-B-01-0 to DCB Atlanta East, LLC for the construction and operation of a data center located at 1726 Farmer Rd Conyers, Georgia. The facility will be a minor source. A public advisory was issued due the construction of new emissions units. The public advisory period ended November 1, 2024 with no comments received by the Division.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//