GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

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

NARRATIVE

TO: Cynthia Dorrough

FROM: Jada Levers

DATE: July 25, 2022

Facility Name:	**Microsoft Corporation – CCO06 Facility**
AIRS No.:	121-0968
Location:	Palmetto, GA (Fulton County)
Application #:	28510
Date of Application:	July 18, 2022

Background Information

Microsoft Corporation is constructing a new datacenter, identified as CCO06 Facility, to be located at 0 Williams Road, Palmetto, Georgia 30268. 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". The Facility is proposing to limit annual fuel usage 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) which establish the Title V major source threshold for each criteria pollutant as 100 tons per year.

Purpose of Application

Application No. 28510 was dated July 12, 2022, and received on July 18, 2022, requesting the installation and operation of twenty [20] 3,000 kW emergency generators each with a heat capacity of 28.23 MMBtu/hr and one [1] 500 kW emergency generator with a heat capacity of 4.80 MMBtu/hr. All generators will be diesel fueled with renewable hydrocarbon diesel used as an alternative fuel and they will provide backup power to servers and other electronic equipment in the event of a power outage at the Facility. Public advisory expired on August 19, 2022.

Updated Equipment List

Fuel Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
GN1	4.80	500 kW Diesel-Fueled Emergency Generator	2023	2023
GN2 – GN21	28.23	3,000 kW Diesel-Fueled Emergency Generators	2023	2023

Emissions Summary

Potential emissions from emergency generators (Source IDs: GN1-GN21) were calculated using emission factors provided by Cummins manufacturer for NO_X, CO, VOC, Filterable PM, and $PM_{10}/PM_{2.5}$ in Appendix D 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 NOx limit of 99 tons per year to maintain synthetic minor status. Since emergency generators (Source IDs: GN1-GN21) are located at a data center, they must not exceed operating more than 500 hours/year per Georgia Rule (mmm).

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions
$PM/PM_{10}/PM_{2.5}$	3.78/3.78/3.78
NO_X	99*
SO_2	0.22
CO	19.40
VOC	7.50
Max. Individual HAP	0.11
Total HAP	0.21
Total GHGs	2.32E04

*99 tpy NO_X 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. Emergency generators (Source IDs: GN1-GN21) will be subject to this rule and the Facility 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 (Source IDs: GN1-GN21) will be subject to this rule and the Facility 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) – NO_X emissions from Stationary Gas Turbines and Stationary Engines Used to Generate Electricity

Rule (mmm) limits allowable emissions of NO_X 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 at data centers that meet the criteria in 391-3-1-.02(2)(mmm)8 are not subject to the emission limits in this rule.

Federal Rules

40 CFR 60 Subpart IIII – Standards of Performance for New Stationary Sources

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 FTY01 Facility plans to commence construction of emergency generators (Source IDs: GN1-GN21) by August 2022, emergency generators (Source IDs: GN1-GN21) will be subject to this rule.

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Source Categories

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. FTY01 Facility is an area source for HAPs and thus will be subject to this rule.

Permit Conditions

Condition 2.1 requires the Permittee to limit the opacity of visible emissions to no more 40% from emergency generators (Source IDs: GN1-GN21).

Condition 2.2 requires the Permittee to limit NO_X emissions into the atmosphere to 99 tpy.

Condition 2.3 establishes limitations for emergency generators (Source IDs: GN1-GN21) subject to 40 CFR 60 Subpart IIII.

Condition 2.4 establishes fuel limitations from 40 CFR 60 Subpart IIII and subsumed from Georgia Rule (g)in emergency generators (Source IDs: GN1-GN21).

Condition 2.5 establishes limits on the operation of the emergency generators (Source IDs: GN1-GN21) per Georgia Rule (mmm).

Condition 2.6 requires the Permittee comply with 40 CFR 60 Subpart A for general provisions and 40 CFR 63 Subpart ZZZZ for national emission standards for hazardous air pollutants for emergency generators (Source IDs: GN1-GN21).

Condition 2.7 requires the Permittee comply with 40 CFR 60 Subpart A for general provisions and 40 CFR 60 Subpart IIII for the standard performance of stationary compression ignition internal combustion engines for emergency generators (Source IDs: GN1-GN21).

Condition 3.1 requires the Permittee 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 specifications, unless otherwise permitted by the manufacturer.

Condition 5.1 establishes hours and load monitoring requirements for emergency generators (Source IDs: GN1-GN21).

Condition 5.2 requires the Permittee operate and maintain emergency generators (Source IDs: GN1-GN21), including air pollution control and monitoring equipment in accordance with 40 CFR 63.6605(b).

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

Condition 7.1 requires the Permittee submit written notification of startup to the Division within 15 days after such date.

Condition 7.2 requires the Permittee maintain monthly operating records for each emergency generator (Source IDs: GN1-GN21) in emergency and non-emergency service.

Condition 7.3 requires the Permittee calculate monthly the twelve-month rolling total of operating time for each of the emergency generators (Source IDs: GN1-GN21).

Condition 7.4 requires the Permittee calculate monthly the twelve-month rolling total of the non-emergency service operating time for the generators (Source IDs: GN1-GN21).

Condition 7.5 provides the equation to calculate the monthly total NOx emissions and requires the Permittee to notify the Division in writing if the monthly total NO_x emissions equal or exceed **8.~~33~~ 25** tons during any calendar month.

Condition 7.6 requires the Permittee use monthly records to calculate the twelve-month rolling total of NO_x emissions from generators (Source IDs: GN1-GN21) for each calendar month. The Division should be notified if any of the twelve-month rolling totals of the NO_x emissions equals or exceeds ~~100~~ 99 tons.

Condition 7.7 requires the Permittee demonstrate compliance with emission standards in 40 CFR 60 Subpart IIII for emergency generators (Source IDs: GN1-GN21) by purchasing an engine certified to the emission standards of 40 CFR 60.4205(b).

Condition 7.8 requires the Permittee maintain a copy of the manufacturer's written operating and maintenance instructions for emergency generators (Source IDs: GN1-GN21) per 40 CFR 60 Subpart IIII.

Condition 7.9 requires the Permittee keep records verifying that received fuel oil is in compliance with condition 2.4.

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 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 SCREEN3 modeling to determine the Maximum Ground-Level Concentration (MGLC) and ensure it will not exceed the Acceptable Ambient Concentration (AAC) established in Appendix A. The short-term model run for generator GN1determined the 15-minute MGLC to be 6.13E-04 $\mu g/m^3$ which is well below the 15-minute AAC of 1,600 $\mu g/m^3$ and the annual MGLC to be 3.72E-05 $\mu g/m^3$ which is below the annual AAC of 30 $\mu g/m^3$. For generators GN2-GN21, the 15-minute MGLC was determined to be 7.21E-02 $\mu g/m^3$ which is well below the 15-minute AAC of 1,600 $\mu g/m^3$ and the annual MGLC was determined to be 4.37E-03 $\mu g/m^3$ which is below the annual AAC of 30 $\mu g/m^3$.The long-term model run for generator GN1determined the 15-minute MGLC to be 1.40E-05 $\mu g/m^3$ which is well below the 15-minute AAC of 1,600 $\mu g/m^3$ and the annual MGLC to be 8.46E-07 $\mu g/m^3$ which is below the annual AAC of 30 $\mu g/m^3$. For generators GN2-GN21, the 15-minute MGLC was determined to be 6.70 $\mu g/m^3$ which is well below the 15-minute AAC of 3.29E-03 $\mu g/m^3$ and the annual MGLC was determined to be 1.99E-04 $\mu g/m^3$ which is below the annual AAC of 30 $\mu g/m^3$. Results of the assessment are included in Appendix E of Application No. 28510 and no further assessment was required for Benzene.

Summary & Recommendations

Based on the above considerations, I recommend issuing Permit 7376-121-0968-S-01-0 for the installation and operation of emergency generators GN1-GN21 at Microsoft Corporation – CCO06 Facility. Public advisory expired on April 19, 2022 and there were no comments received. The Facility will maintain a synthetic minor source status and the Mountain District (Atlanta) office will continue responsibility over compliance and receiving report submittals.

Formatted: Not Highlight