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: Bradley Belflower

DATE: September 5, 2023

Facility Name:	**Quality Investment Properties Suwanee, LLC**
AIRS No.:	135-00235
Location:	Suwanee, GA (Gwinnett County)
Application No.:	28926
Date of Application:	June 27, 2023

Background Information

Quality Investment Properties Suwanee, LLC (QIP Suwanee) is an electronic data center located at 300 Satellite Blvd, NW in Suwanee, Georgia. QIP Suwanee utilizes emergency power generators for emergency standby operation with no peaking power usage. Prior to the issuance of Permit No. 7376-135-0235-S-07-0, the facility operated under a Title V permit. The facility now operates as a synthetic minor source. In July 2018, the NOx and VOC major source threshold for Gwinnett County was raised to 100 tpy NOx and VOC [per 391-3-1-.03(8)(c)14.(i)]. Permit No. 7376-135-0235-S-07-1 was issued to increase the facility-wide NOx limit to 100 tons per year. QIP Suwanee operates a total of 29 diesel-fired emergency generators.

Enterprise Services LLC (Site 5) [formerly Hewlett-Packard Data Center (Site 5)] is an electronic data center located at 120 Satellite Blvd, NW in Suwanee, Georgia. Enterprise Services currently operates 16 diesel-fired emergency power generators under Permit No. 7374-135-0263-S-02-0 (and its amendments). Four additional emergency power generators have been permitted for the Enterprise Services site, but these engines have not been installed. On November 16, 2022, QIP Suwanee purchased the Enterprise Services (Site 5) data center.

Purpose of Application

Application 28926 was received June 27, 2023, to consolidate the QIP Suwanee data center (designated DC1) and Enterprise Services data center (designated DC2) into one permit, remove from the permit the four engines at DC2 that have not been installed, and construct five new 2,500 kW diesel-fired generators at DC2. The name of the consolidated facility will be Quality Investment Properties Suwanee, LLC. The combination of the two data centers will remain a synthetic minor source. A Public Advisory expired on July 28, 2023. No comments were received.

Updated Equipment List

Generator Engines

Source Codes		Engine Manufacturer and Model Number	Generator Rating		Installation Date
Old	New		(kWe)	(hp)	
Data Center DC1					
GN01	GN01	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN02	GN02	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN03	GN03	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN04	GN04	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN05	GN05	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN06	GN06	Mitsubishi Hitec S16R-PTA	1,440	2,279	2000
GN07	GN07	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN08	GN08	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN09	GN09	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN10	GN10	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN11	GN11	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN12	GN12	Catepillar Cat 3516BDITA	2,000	2,836	2001
GN13	GN13	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN14	GN14	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN15	GN15	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN16	GN16	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN17	GN17	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN18	GN18	Catepillar AP Cat 3516BDITA	2,250	3,196	2006
GN19	GN19	Kohler 2800 REOZD	2,800	4,035	2007
GN20	GN20	Kohler 2800 REOZD	2,800	4,035	2007
GN21	GN21	Kohler 2800 REOZD	2,800	4,035	2007
GN22	GN22	Kohler 2800 REOZD	2,800	4,035	2007
GN23	GN23	Kohler 2800 REOZD	2,800	4,035	2007
GN24	GN24	Kohler 2800 REOZD	2,800	4,035	2007
GN25	GN25	Cummins DQGAB	1,500	2,220	2021
GN26	GN26	Cummins DQGAB	1,500	2,220	2021
GN27	GN27	Kohler KD2500	2,500	3,621	2022
GN28	GN28	Kohler KD2500	2,500	3,621	2022
GN29	GN29	Kohler KD2500	2,500	3,621	2022
Data Center DC2					
EG-1	GN30	Cummins DQKAB60-G6	2,000	2,922	2006
EG-2	GN31	Cummins DQKAB60-G6	2,000	2,922	2006
EG-3	GN32	Cummins DQKAB60-G6	2,000	2,922	2006
EG-4	GN33	Cummins DQKAB60-G6	2,000	2,922	2006
EG-5	GN34	Cummins DQKAB60-G6	2,000	2,922	2006
EG-6	GN35	Cummins DQKAB60-G6	2,000	2,922	2006
EG-7	GN36	Cummins DQKAB60-G6	2,000	2,922	2006
EG-8	GN37	Cummins DQKAB60-G6	2,000	2,922	2006

Source Codes		Engine Manufacturer and Model Number	Generator Rating		Installation Date
Old	New		(kWe)	(hp)	
EG-9	GN38	Cummins DQKAB60-G6	2,000	2,922	2006
EG-10	GN39	Cummins DQKAB60-G6	2,000	2,922	2007
EG-11	GN40	Cummins DQKAB60-G6	2,000	2,922	2007
EG-12	GN41	Cummins DQKAB60-G6	2,000	2,922	2007
EG-13	GN42	Cummins DQKAB60-G6	2,000	2,922	2007
EG-14	GN43	Cummins DQKAB60-G6	2,000	2,922	2011
EG-15	GN44	Cummins DQKAB60-G6	2,000	2,922	2011
EGLS	GN45	Detroit Diesel 12V2000-R1237M36	750	1,120	2006
	GN46*	Catepillar 3516C	2,500	3,634	2023
	GN47*	Catepillar 3516C	2,500	3,634	2023
	GN48*	Catepillar 3516C	2,500	3,634	2023
	GN49*	Catepillar 3516C	2,500	3,634	2023
	GN50*	Catepillar 3516C	2,500	3,634	2023

*proposed within current application

Emissions Summary

Detailed emission calculations are included in Appendix C of Application No. 28926 and summarized in the following table.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
$PM/PM_{10}/PM_{2.5}$	4.13	5.00	0.87	0.54	0.58	0.04
NOx	<100	<100	0	23.25	25.27	2.02
SO_2	0.18	0.24	0.06	0.03	0.04	0.01
CO	23.65	25.03	1.38	2.53	2.85	0.32
VOC	7.55	9.41	1.86	1.08	1.31	0.23
Max. Individual HAP	0.051	0.104	0.053	0.010	0.011	0.001
Total HAP	0.10	0.20	0.10	0.02	0.02	0.00

Regulatory Applicability

391-3-1-.02(2)(b) – Visible Emissions

Rule (b) limits the opacity of visible emissions from any air contaminant source that is subject to some other emission limitation under 391-3-1-.02(2). The opacity of visible emissions from regulated sources may not exceed 40 percent under this general visible emission standard.

Rule (b) applies to all existing and proposed engines at the data centers.

391-3-1-.02(2)(g) – Sulfur Dioxide

Rule (g) applies to all "fuel burning" sources. The emergency generators are fuel burning sources subject to this rule. The fuel sulfur content limit for fuels burned is 2.5 percent by weight, in accordance with Rule (g)2.

Rule (g) applies to all existing and proposed engines at the data centers. However, the engines that are subject to Subpart IIII (discussed later) are subject to a more stringent fuel sulfur limit.

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

Rule (mmm) applies to stationary engines used to generate electricity whose nameplate capacity is between 100 kilowatts (kW) and 25 megawatts (MW) located in the area around Atlanta including Gwinnett County. Stationary engines at data centers are not subject to the emission limits in this rule if they meet the criteria in 391-3-1-.02(2)(mmm)8. The data centers will operate their engines in accordance with these criteria (per Condition 2.4), so the NOx emission limits do not apply.

40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII regulates the compression ignition engines (on the emergency generators) constructed after July 11, 2005 and manufactured after April 1, 2006. Engines GN01 through GN12 were constructed prior to these dates and, therefore, are not subject to this rule. All other existing and new engines are subject to Subpart IIII. The company must operate the engines as emergency-use only and comply with the emission standards and opacity requirement under NSPS Subpart IIII by purchasing certified engines.

Note that in the previous permit, engines GN13 through GN18 were listed as not subject to this rule. Application 28926, however, lists these engines as being manufactured after April 1, 2006, and as being subject to this rule.

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

Subpart ZZZZ regulates emissions from reciprocating internal combustion engines at major and area sources of HAPs. This facility is an area source of HAP emissions. In accordance with 40 CFR 63.6590(c), compliance with Subpart ZZZZ for the engines subject to 40 CFR 60 Subpart IIII (GN13 through GN50) will be shown by showing compliance with 40 CFR 60 Subpart IIII.

Per 40 CFR 63.6585(f)(2), existing commercial emergency stationary RICE located at an area source of HAP emissions are not subject Subpart ZZZZ if they are not operated for the purposes specified in 40 CFR 63.6640(f)(4)(ii) and they meet the definition of emergency stationary RICE in 40 CFR 63.6675. Engines GN01 through GN12 meet these requirements and, therefore, are not subject to Subpart ZZZZ.

Permit Conditions

Condition 2.1 limits facility wide NOx emissions to 100 tpy so that the data centers are a synthetic minor source.

Condition 2.2 states that emergency generators GN13 through GN50 are subject to 40 CFR 60 Subpart IIII.

Condition 2.3 states that the emergency generators GN13 through GN50 are subject to 40 CFR 63 Subpart ZZZZ.

Condition 2.4 includes the criteria that must be met for the emergency generators to avoid being subject to the emission limit in Rule (mmm). These criteria are laid out in 391-3-1-.02(2)(mmm)8.

Condition 2.5 includes the Rule (b) opacity limit for all emergency generators.

Condition 2.6 limits the fuel sulfur for the emergency generators GN01 through GN12 which are not subject to 40 CFR 60 Subpart IIII.

Condition 2.7 includes the fuel limitations (including fuel sulfur) for emergency generators GN13 through GN50 from 40 CFR 60 Subpart IIII. This condition also subsumes Georgia Rule (g).

Condition 2.8 includes the limitation of operation for 100 hours for maintenance checks and readiness testing from 40 CFR 60 Subpart IIII. This condition is applied to all emergency generators including those that are not subject to Subpart IIII.

Condition 4.1 specifies that emergency generators GN13 through GN50 must be operated per manufacturer's written instructions. This requirement is due to 40 CFR 60 Subpart IIII.

Condition 5.2 requires hours and load monitoring for all emergency generators.

Condition 6.2 allows the Division to require tests on the emergency generators to verify NOx emission factors in Condition 7.4. The emission factors for the emergency generators were requested by the Permittee.

Condition 6.3 requires a NOx measurement on one of the new emergency generators (GN46 through GN50) to verify the NOx emission factors in Condition 7.4. The measurement is required within 90 days of startup and uses the procedures from Condition 6.2.

Condition 6.4 requires a NOx measurement on one emergency generator from Group 7 (GN30 through GN44) and one emergency generator from Group 8 (GN45) to verify the NOx emission factors in Condition 7.4. The measurement is required within 90 days of startup and uses the procedures from Condition 6.2. Note that the test on the Group 8 emergency generator is only required at 100% load because its only emission factor in Condition 7.4 is at 100% load.

Condition 7.1 requires monthly records of hours of operation for all emergency generators.

Condition 7.2 requires records of twelve-month total hours of operation for each calendar month. These records are used to show compliance with the hours of operation limit in Condition 2.4.

Condition 7.3 requires calculation of the twelve-month total non-emergency hours of operation for each calendar month. These records are used to show compliance with the non-emergency hours of operation limits in Condition 2.8.

Condition 7.4 requires the calculation of monthly NOx emissions based on hours of operation and average emergency generator load. The condition contains the equation to be used for the calculation and a table of emission factors. The emission factors were requested by the Permittee and have been verified by previous permit conditions or will be verified by Conditions 6.3 and 6.4.

Condition 7.5 requires the calculation of twelve-month total NOx emissions to show compliance with the NOx limit in Condition 2.1.

Condition 7.6 requires the purchasing of certified engines per 40 CFR 60 Subpart IIII for emergency generators GN13 through GN50.

Condition 7.7 requires each shipment of diesel fuel to verify that the fuel meets the fuel requirements in Conditions 2.6 and 2.7.

Condition 7.8 requires maintaining written operating and maintenance instructions per 40 CFR 60 Subpart IIII for emergency generators GN13 through GN50.

The following table summarizes how the permit conditions from the previous QIP Suwanee (Permit No. 7376-135-0235-S-07-0 and its amendments) and Enterprise Services (Permit No. 7374-135-0263-S-02-0 and its amendments) permits are incorporated into this permit. Comments are included in the table to explain changes to previous permits and differences between the pervious QIP Suwanee and Emergency Services permit conditions. Comments are not included if the only differences are changing condition numbering, updating applicable unit source codes, or minor changes in wording.

Condition Number			Comments
New Permit	**QIP**	**Enterprise Services**	
2.1	2.1	2.1	QIP limited NOx to 100 tpy, Enterprise Services limited NOx to 25 tpy. This permit adopts the 100 tpy limit to avoid Title V applicability.
2.2	2.5	2.4	
2.3	2.9	2.7	
2.4	2.2	----	Operational limits from 391-3-1-.02(2)(mmm)8 to avoid applicability of Rule (mmm) NOx limit.
----	----	2.2	200 hours per year operating limit per generator. This limit was used to exempt the Enterprise Services generators from the NOx limit in Rule (mmm). The new permit uses the operational limits in new Condition 2.4 for this purpose.
2.5	2.3	2.3	
2.6	2.4	----	
2.7	2.7	2.6	
2.8	2.6	2.5	
4.1	2.8	4.1	

Condition Number			Comments
New Permit	QIP	Enterprise Services	
5.2	5.2	5.2	
6.2	6.2	----	Condition states that the Division can require testing on the generators to verify emission factors used in emission calculations. Enterprise Services used different emission factors and did not contain an equivalent condition. Additionally, the previous QIP permit condition contained a table of emission factors for the generators. This condition moves this table to Condition 7.4.
6.3	----	----	
6.4	----	----	
----	6.3	----	One-time test requirement that no longer applies.
----	6.4	----	One-time test requirement that no longer applies.
7.1	7.1	7.1	
7.2	7.2	7.2	
7.3	7.3	7.3	
7.4	7.4	7.4	Enterprise Services generators are incorporated into the NOx calculation procedure from the previous QIP permit. The table of emission factors that was previously in QIP's Condition 6.2 has been moved to this condition. Additionally, the description of variables used in the included equation have been updated to improve clarity.
7.5	7.5	7.5	
7.6	7.6	7.6	
7.7	7.7	7.7	
7.8	7.8	----	

Toxic Impact Assessment

In Appendix D of Application No. 28926, a Toxic Impact Assessment (TIA) was conducted for the combined facility. Benzene was determined to be the only toxic air pollutant (TAP) that exceeds the minimum emission rate (MER) and required modeling. The Division's Data Modeling Unit used AERMOD dispersion model with the emission rates and emission point parameters provided in the application to determine the maximum ground level concentration of benzene. These emission rates and parameters were verified by the Stationary Source Permitting Program. The modeling results from the DMU Modeling Review Report – TAP dated August 28, 2023, are summarized in the following table.

TAP	Averaging Period	AAC (µg/m^3)	Max Modeled Concentration (µg/m^3)	Percent of AAC
Benzene	Annual	0.13	0.02782	21.40
Benzene	15-minute	1,600	12.426995	0.78

Summary & Recommendations

I recommend that Permit No. 7376-135-0235-S-08-0 be issued to Quality Investment Properties Suwanee, LLC. This permit consolidates Quality Investment Properties Suwanee, LLC, now known as DC1, and Enterprise Services LLC (Site 5), now known as DC2, into one permit. In addition, this permit removes four previously permitted engines from DC2 that have not been constructed and adds five new emergency generators to DC2. The new facility consisting of DC1 and DC2 is a synthetic minor source and is assigned to the Stationary Source Compliance Program. A public advisory expired on July 28, 2023. No comments were received.

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.//