GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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NARRATIVE

TO: James Eason

FROM: Renee Browne

DATE: November 27, 2017

Facility Name:	**The Keep Campus**
AIRS No.:	09700091
Location:	Lithia Springs, GA (Douglas County)
Application #:	26290
Date of Application:	November 10, 2017

Background Information

The Keep Campus will be a greenfield facility located at 580 Douglas Hills Road in Lithia Springs, Georgia 30122 (Douglas County). The company will be constructing and operating a planned data center with diesel-fired emergency generators to supply power during readiness testing, system maintenance and emergencies.

Douglas County is listed in Rule 391-3-1-.03(8)(c)13 "Additional Provisions for Ozone Non-Attainment Areas for Counties that were Formerly Part of the 1-hour Ozone Non-Attainment Area" which defines a "major source" as any stationary source that emits or has the potential to emit, at least 25 tons per year of VOC or NOx.

Purpose of Application

Application No. 26290 was received on November 13, 2017 for the construction and operation of diesel-fired emergency generators to be located at 580 Douglas Hills Road in Lithia Springs, Georgia 30168 (Douglas County). The application included a request for a federally-enforceable site-wide NOx emission limitation of 25 tons per year, 12-month rolling basis to avoid major source status of Part 70 and NAA NSR. The proposed NOx limitation is inclusive of all engine operations, including emergency and non-emergency use. The generators will be used only for maintenance checks, readiness testing and as needed for emergency backup power in the event of utility power interruptions.

Public Advisory expired on December 22, 2017

Equipment List

Facility emission units include emergency generators, fire pumps, water coolers, and fuel storage belly tanks. The facility will have multiple identical emergency generators that are all diesel-fired. The fire pumps, water coolers, and diesel belly tanks are exempt from state air permitting requirements pursuant to Georgia Rules for Air Quality Control 391-3-1-.03(6)(c)3.

Emission Unit ID	Description	Construction Date	Installation Date
Emergency Generator Group EG-A	Diesel-Fired Emergency Generator	2017	2018

Emissions Summary

NOx is the major pollutant of concern from this data center. Potential emissions are based on each generator operating at the highest emitting load, 500 hours per year [Rule (mmm)], and the manufacturer-provided emission factors. (NOx emissions are highest at 100% load, CO emissions are the highest at 25% load, etc.) Potential NOx emissions are calculated to be 233 tons per year.

The company has requested a federally-enforceable site-wide NOx emission limit of 25 tons per year to be included in the Permit to limit the NOx potential-to-emit. The NOx limit will be monitored via hours of operation, hourly average operating output load, and performance test verified NOx emission factors. NOx emissions will be calculated based on the hours of operation and the NOx emission factor at 100% (51.73 lbs/hr). Or, as an alternative, NOx emissions can be calculated using run hours, hourly average engine load in kilowatts, and approved NOx emission factors. Performance testing will be required on two of the generators to demonstrate the units can meet the manufacture's emission rates used to calculate NOx emissions. The monthly average engine load and monthly total run hours will be used to calculate monthly NOx emissions from each engine.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions
NOx	25*
CO	17.9
VOC	5.4
PM	2.7
$PM_{10}/PM_{2.5}$	2.9/2.9
SO_2	0.18
Max. Individual HAP	3.2E-01
Total HAP	5.00E-01

* 25 tpy NOx permit limit

Regulatory Applicability

Georgia State Rules:

391-3-1-.02(2)(b) – The allowable visible emission from the generators is 40% in accordance with Georgia Rule 391-3-1-.02(2)(b)1.

391-3-1-.02(2)(g) – The allowable fuel sulfur content is 2.5 weight percent in accordance with Georgia Rule 391-3-1-.02(2)(g)2. This requirement is subsumed by NSPS IIII requirement, which requires maximum fuel oil sulfur requirement of 15 ppm (0.0015% by weight).

391-3-1-.02(2)(n) – The percent opacity from any fugitive dust source shall not equal or exceed 20 percent. The facility should take precautions to limit fugitive dust from becoming airborne.

391-3-1-.02(2)(mmm) – Each generator that operates less than 200 hours per twelve consecutive months will meet the definition of Rule (mmm)4(i) for "Emergency standby stationary engines" and will operate only during routine testing, maintenance, and emergencies. Each generator that operates between 200 and 500 hours per twelve consecutive months will meet the definition of Rule (mmm)8 for engines at data centers and will additionally be limited to the hours of 10 p.m. and 4 a.m. for routine testing and maintenance during the months of May through September.

Federal Rules:

40 CFR 60 Subpart IIII – The emergency generators were constructed after July 11, 2005 and manufactured after April 1, 2006. They are subject to the requirements of NSPS Subpart IIII and meet the definition of emergency stationary ICE in 60.4219. The company must comply with the emission standards and opacity requirement under NSPS Subpart IIII by purchasing certified engines. The generators shall only use diesel fuel that has a maximum sulfur content of 15 parts per million (ppm) (0.0015% by weight) and either a minimum cetane index of 40 or maximum aromatic content of 35 volume percent. The accumulated non-emergency service (maintenance check and readiness testing) time for the generator shall not exceed 100 hours per year. Non-resettable hour meters and records of the time and reason of operation are required.

40 CFR 63 Subpart ZZZZ (RICE MACT) - The emergency generators are constructed after June 12, 2006. Therefore, they are considered new emergency stationary reciprocating internal combustion engines (RICE) and they are subject to 40 CFR 63 Subpart ZZZZ. 40 CFR 63 Subpart ZZZZ [40 CFR 63.6590(c)] states that new emergency stationary RICE located at an area source, must meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII.

Permit Conditions

Permit Condition 2.1 limits nitrogen oxides (NOx) emissions to equal or less than 25 tons during any consecutive twelve-month period.

Permit Condition 2.2 limits the hours of operation of each individual emergency generator to less than 500 hours per twelve consecutive months for the definition of Rule (mmm)8 and limits, for generators over 200 hours, routine testing, and maintenance during the months of May through September to the hours between 10 p.m. to 4 a.m. Condition 2.2 also allows any generator that operates less than 200 hours per

twelve consecutive months to comply with the definition of Rule (mmm)4(i). [40 CFR 60.4211(f)(3) subsumed].

Permit Condition 2.3 limits the accumulated time for maintenance checks and readiness testing for the emergency generators.

Permit Condition 2.4 limits opacity from the emergency generators to 40%.

Permit Condition 2.5 addresses the applicability of NSPS Subpart A and Subpart IIII to the emergency generators.

Permit Condition 2.6 states that the emergency generators are only allowed to burn diesel fuel that has a maximum sulfur content of 15 ppm (0.0015% by weight) and either a minimum cetane index of 40 or maximum aromatic content of 35 volume percent.

Permit Condition 2.7 addresses the applicability of NSPS Subpart A and Subpart ZZZZ to the emergency generators.

Permit Condition 3.1 incorporates Georgia Rule (n), which requires the facility to minimize fugitive dust emissions.

Permit Conditions 4.1 requires the operation and maintenance of the emergency generators according to manufacturer's specifications/instructions.

Permit Conditions 5.1 contains the Division's standard requirements for any continuous monitoring system.

Permit Conditions 5.2 requires the installation of a non-resettable hours meter to monitor the hours of operation of the emergency generators. The meter must also be able to record the type of service the engine was in as well as the hours associated with that service. This is a requirement of NSPS Subpart IIII. Condition 5.2 also requires the installation of a system to monitor the generator output load and record the one-hour average generator output.

Permit Condition 6.1 contains the requirements for conducting a performance test.

Permit Condition 6.2 requires two emergency generators to be load tested at five load points to ensure compliance with the manufacture's emission factors or determine NOx emission rates. The engines will be operated at 10% (+/-5%), 25% (+/-5%), 50% (+/-5%), 75% (+/-5%), and 100% (+/-5%), of the rating of the engines. During this testing, NOx will be continuously measured with instruments meeting the applicable EPA Test Methods listed in Permit Condition 6.3 of the permit. Generator output is the key process parameter that will be monitored during the load tests. During the five steady state levels, flow and moisture will be determined via a Method 1-4 train. Steady state at each load point will be measured for a minimum of 30 minutes before the next step change is made.

Testing will be conducted on a minimum of two engines to determine the emission rate (in lb/hr and grams per bHp-hr) of these engines at a given load point. If the NOx emission rates determined by the tests are less than the Manufactures Emission Rates, the Manufactures Emission Rates can be used to calculate emission according to Condition 7.6 of the Permit. If the any NOx emission rate determined by the tests exceeds the Manufactures Emission Rates, then the emission rate determined by the test shall be

used to replace the Manufactures Emission Rate at that given load. The emission factors established in Permit Condition 6.2 used must be a division approved emission factor from the higher emissions of the two tests.

Should any of the steady state NOx emission rates determined at a given load point for the two engines vary from each other by more the 10%, the Division may ask the Permittee to test more engines to better represent the engines population's worst case emissions.

Permit Condition 6.3 lists the applicable EPA Test Methods to be used during testing.

Permit Conditions 7.1 through 7.3 establish detailed record keeping, emission calculation/compliance demonstration and report requirements for the annual operating time limits.

Permit Condition 7.4 requires the demonstration of compliance with NSPS Subpart IIII emission limits for the emergency generators.

Permit Condition 7.5 establishes the compliance demonstration requirements for firing distillate fuel oil in the emergency generators.

Permit Condition 7.6 provides the equation for calculating monthly NOx emissions from the emergency generators.

Condition 7.7 requires the Permittee to calculate total NOx emissions (in tons) from the emergency generators during the last twelve consecutive calendar months, using the equation in Condition 7.2.

Toxic Impact Assessment

A toxic impact analysis was not required for this permit.

Summary & Recommendations

Therefore, I recommend issuing proposed Air Quality Permit No. 7375-097-0091-S-01-0 for the operation of emergency generators at The Keep Campus.