PERMIT NO. 7375- 097-0091-S-01-0
ISSUANCE DATE: 2/9/2018

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Air Quality Permit

In accordance with the provisions of the Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Rules, Chapter 391-3-1, adopted pursuant to and in effect under that Act,

Facility Name:	**The Keep Campus**
Facility Address:	**580 Douglas Hills Road** **Lithia Springs, Georgia 30168 Douglas County**
Mailing Address:	**P.O. Box 400850** **Las Vegas, NV 89140**
Facility AIRS Number:	**04-13-097-00091**

is issued a Permit for the following:

Construction and operation of a data center with emergency standby stationary generators. This Permit is issued for the purpose of establishing practically enforceable emission limitations such that the facility will not be considered a major source with respect to Title V of the Clean Air Act Amendments of 1990.

This Permit is conditioned upon compliance with all provisions of The Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq, the Rules, Chapter 391-3-1, adopted and in effect under that Act, or any other condition of this Permit.

This Permit may be subject to revocation, suspension, modification or amendment by the Director for cause including evidence of noncompliance with any of the above; or for any misrepresentation made in Application No. 26290 signed October 31, 2017; any other applications upon which this Permit is based; supporting data entered therein or attached thereto; or any subsequent submittals or supporting data; or for any alterations affecting the emissions from this source.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **8** pages.

STATE OF GEORGIA
CONSTITUTION
WISDOM
JUSTICE
MODERATION
1776

[Signed]

Richard E. Dunn, Director
Environmental Protection Division

1. General Requirements

1.1 At all times, including periods of startup, shutdown, and malfunction, the Permittee shall maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection or surveillance of the source.

1.2 The Permittee shall not build, erect, install or use any article, machine, equipment or process the use of which conceals an emission which would otherwise constitute a violation of an applicable emission standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged into the atmosphere.

1.3 The Permittee shall submit a Georgia Air Quality Permit application to the Division prior to the commencement of any modification, as defined in 391-3-1-.01(pp), which may result in air pollution and which is not exempt under 391-3-1-.03(6). Such application shall be submitted sufficiently in advance of any critical date involved to allow adequate time for review, discussion, or revision of plans, if necessary. The application shall include, but not be limited to, information describing the precise nature of the change, modifications to any emission control system, production capacity and pollutant emission rates of the plant before and after the change, and the anticipated completion date of the change.

1.4 Unless otherwise specified, all records required to be maintained by this Permit shall be recorded in a permanent form suitable for inspection and submission to the Division and shall be retained for at least five (5) years following the date of entry.

1.5 In cases where conditions of this Permit conflict with each other for any particular source or operation, the most stringent condition shall prevail.

2. Allowable Emissions

2.1 The Permittee shall not discharge or cause the discharge into the atmosphere from data center operations nitrogen oxides (NOx) emissions equal to or greater than 25 tons during any consecutive twelve-month period.
[Avoidance of NAA/NSR]

2.2 The Permittee shall limit the operation of each emergency generator to less than 500 operating hours during any consecutive twelve month period for routine testing and maintenance, when electric power from the local utility is not available, or internal system failures. For any emergency generator exceeding 200 operating hours during the previous twelve months, operation for routine testing and maintenance during the months of May through September shall be limited to the hours between 10 p.m. to 4 a.m.
[391-3-1-.02(2)(mmm), 40 CFR 60.4211(f)(3) subsumed]

2.3 The Permittee shall operate the emergency generators according to the requirements specified below. Any operation other than emergency operation, maintenance check and readiness testing, as described below, is prohibited:

a. The Permittee may operate the emergency generators of the purposes specified in paragraph i. below for a maximum of 100 hours per calendar year.
[40 CFR 60.4211(f)(2)]

i. The emergency generators may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Division for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency generators beyond 100 hours per calendar year.

2.4 The Permittee shall not cause, let, suffer, permit or allow emissions from the emergency generators the opacity of which is equal to or greater than forty (40) percent opacity (6-minute average).
[391-3-1-.02(2)(b)1]

2.5 The Permittee shall comply with all applicable provisions of 40 CFR Part 60 New Source Performance Standards (NSPS) Subpart A - "General Provisions" and Subpart IIII – "Standards for Stationary Compression Ignition Internal Combustion Engines", for the operation of generators.
[40 CFR 60, Subparts A and IIII]

2.6 The Permittee shall only use 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.
[40 CFR 60.4207 and 391-3-1-.02(2)(g) subsumed]

2.7 The Permittee shall comply with the 40 CFR 63, Subpart A "General Provisions" and 40 CFR 63, Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines [RICE]" for operation of the emergency generators by complying with 40 CFR 60 Subpart IIII – "Standards for Stationary Compression Ignition Internal Combustion Engines".
[40 CFR 63, Subparts A and ZZZZ]

3. Fugitive Emissions

3.1 The Permittee shall take all reasonable precautions with any operation, process, handling, transportation, or storage facilities to prevent fugitive emissions of air contaminants.

4. Process & Control Equipment

4.1 Each of the emergency generators shall be operated and maintained according to the manufacturer's emission-related written specifications/instructions or procedures developed by the Permittee that are approved by the engine manufacturer, over the entire life of the engine. In addition, the Permittee shall only change those emission-related settings that are permitted by the manufacturer.
[40 CFR 60.4211(a)]

5. Monitoring

5.1 Any continuous monitoring system or device required by the Division and installed by the Permittee shall be in continuous operation except during calibration checks, zero and span adjustments or period of repair. Maintenance or repair shall be conducted in the most expedient manner to minimize the period during which the system is out of service.
[391-3-1-.02(6)(b)1]

5.2 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record the indicated parameters on each emergency generator. Where such performance specification(s) exist, each system shall meet the applicable performance specification(s) of the Division's monitoring requirements.
[391-3-1-.02(6)(b)1; 40 CFR 63.6625(f); 40 CFR 60.4209(a)]

a. A non-resettable hour meter to continuously record and track the hours operated during emergency service and the hours operated in non-emergency service (maintenance and/or testing), to record the reason the engine was in operation during those times, and to record the cumulative total hours of operation.

b. A system to monitor the generator output load (in kilowatts electric, KWe) from each emergency generator. The one-hour average generator output shall be recorded each time the generator is operated.

6. Performance Testing

6.1 The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The following provisions shall apply with regard to such tests:

a. All tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division's Procedures for Testing and Monitoring Sources of Air Pollutants.

b. All test results shall be submitted to the Division within sixty (60) days of the completion of testing.

c. The Permittee shall provide the Division thirty (30) days prior written notice of the date of any performance test(s) to afford the Division the opportunity to witness and/or audit the test, and shall provide with the notification a test plan in accordance with Division guidelines.

d. All monitoring systems and/or monitoring devices required by the Division shall be installed, calibrated and operational prior to conducting any performance test(s). For any performance test, the Permittee shall, using the monitoring systems and/or monitoring devices, acquire data during each performance test run. All monitoring system and/or monitoring device data acquired during the performance testing shall be submitted with the performance test results.

6.2 Within 180 days after the startup of any emergency generator, the Permittee shall conduct load tests on two of the emergency generator engines to measure for Nitrogen Oxides (NOx) to determine the emission rate (in lb/hr and grams per bHp-hr) of these engines as pertaining to the applicable emission limits specified in Condition 7.6. The results of the load tests(s), including process, monitoring data, and all supporting calculations, shall be submitted to the Division within 60 days of the completion of the testing.
[391-3-1-.02(3), 391-3-1-.03(2)(c)]

Each test measurement shall use the following procedures:

a. The Permittee shall carry out a measurement for Nitrogen Oxides. A minimum of four measurements shall be made for each engine: one representing 10% load (+/- 5%), 25% load (+/- 5%), one representing 50% load (+/- 5%), one representing 75% load (+/- 5%), and one representing 100% load (+/- 5%). Each measurement shall last a minimum of 30 minutes. The procedures in Condition 6.3 of the permit shall be used to conduct the measurements.

b. The percent load will be based on the engine-generator-set's rated maximum standby power rating.

c. 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 than 10%, the Division may ask the Permittee to test more engines to better represent the engines population's worst case emissions.

d. Should any of the steady state NOx emission rates determined at a given load point for the two engines exceed the Manufacture's Emission Rate, the higher tested emission rate at the represented load shall be used to calculate NOx emissions according to Condition 7.6.

6.3 Performance and compliance tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division's Procedures for Testing and Monitoring Sources of Air Pollutants. The methods for the determination of compliance with emission limits listed under Condition 7.6 are as follows:

a. Method 1 shall be used for the determination of sample point locations,

b. Method 2 shall be used for the determination of stack gas flow rate,

c. Method 3B shall be used for the determination of the emission rate correction factor or excess air; Method 3A may be used as an alternate,

d. Method 4 shall be used for the determination of stack gas moisture,

e. Method 5 shall be used for the determination of particulate matter emissions,

f. Method 7 or 7E shall be used for the determination of nitrogen oxides emissions,

g. Method 9 and the procedures of Section 1.3 shall be used for the determination of the opacity of visible emissions,

h. Method 10 shall be used for the determination of carbon monoxide emissions,

i. Method 19 shall be used when applicable to convert, nitrogen oxide and carbon monoxide concentrations (i.e., ppm to lb/scf for gaseous pollutants) as determined using other methods specified in this condition to emission rates (i.e. lb/hr),

j. ASTM D4057 shall be used for the collection of fuel sample, and

k. Method 19, Section 12.5.2.2. shall be used for the determination of fuel oil sulfur content.

Minor changes in methodology may be specified or approved by the Director or his designee when necessitated by process variables, changes in facility design, or improvement or corrections that, in his opinion, render those methods or procedures, or portions thereof, more reliable.
[391-3-1-.02(3)(a)]

7. Notification, Reporting and Record Keeping Requirements

7.1 The Permittee shall maintain monthly operating records for each emergency generator in emergency and non-emergency service, as recorded on the non-resettable hour meter required for each generator in Condition 5.2. The Permittee shall record the time of operation of the engine and the reason the engine was in operation during that time. Records shall be maintained for a period of five (5) years in a format suitable for inspection by or submission to the Division.
[391-3-1-.02(6)(b)1]

7.2 The Permittee shall use monthly operating time data required by Condition 7.1 to calculate monthly the twelve-month rolling total of operating time for each of the generators specified in Condition 7.1 for each consecutive twelve-month period. All the calculations shall be kept as part of the records required in Condition 7.1. The Permittee shall notify the Division in writing within 15 days if the twelve-month rolling total operating time for any generator equals or exceeds 500 hours. This notification shall include an explanation of how the Permittee intends to comply with Condition 2.2.
[391-3-1-.02(6)(b)1]

7.3 The Permittee shall use monthly non-emergency service operating time records required by Condition 7.1 to calculate monthly the twelve-month rolling total of the non-emergency service operating time for the generators for each consecutive twelve-month period. All the calculations shall be kept as part of the records required in Condition 7.1. The Permittee shall notify the Division in writing within 15 days if the twelve-month rolling total of non-emergency service operating time for any generator equals or exceeds 100 hours. This notification shall include an explanation of how the Permittee intends to comply with Condition 2.3.
[40 CFR 60.4211(f)(3)]

7.4 The Permittee shall demonstrate compliance with emission standards specified in 40 CFR 60, Subpart IIII for emergency generators by purchasing an engine certified to the emission standards in 40 CFR60.4205(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. These records shall be maintained in a format suitable for inspection or submittal.
[40 CFR 60.4211(c)]

7.5 The Permittee shall keep records verifying that each shipment of fuel received for firing the generators at the facility complies with the applicable requirements in Condition 2.6. Verification shall consist of the fuel oil receipts and/or fuel supplier certifications, or results of analyses of the fuel oils conducted by methods of sampling and analysis, which have been specified or approved, by the EPA or the Division. These records shall be kept available for inspection or submittal for five (5) years from the date of record.
[391-3-1-.02(6)(b)1]

7.6 The Permittee shall use the operational data (hours and load, if needed) measured and recorded per Conditions 5.2 and 7.1 and Division approved emission rates to calculate monthly NOx emissions, each calendar month, from all emergency generators. The Permittee shall use the higher of the Manufacture's Emission Rates in the table below or the NOx emission rates determined from the performance testing required by Condition 6.2. All demonstration calculations shall be kept as part of the records required by Condition 7.1. The Permittee shall notify the Division in writing within 15 days if the monthly total NOx emissions from the facility equals or exceeds 2.08 tons during any calendar month. This notification shall include an explanation of how the Permittee intends to maintain compliance with the emission limit in Condition 2.1. Monthly NOx emissions from fuel combustion at the facility shall be determined using the following equation:

a. Monthly NOx Emissions:

$$NOx\ (tons) = \sum_{n=1}^{x} \left[Emission\ Rate\ @\ 100\%\ Load\ L_n \left(\frac{lbs}{hr}\right)\right] [Hrs_n]/2000$$

Where:

Emission Rate @ 100% Load L_n = The mass emission rate in pounds per hour for engine *n* at 100% operating load (The higher of the Manufacture's Emission Rate 51.76 lbs/hr or the NOx emission rate determined from performance testing required by Condition 6.2).

Hrs = the total operating hours for engine *n* in the given calendar month.

n = generator number

x = actual number of generators in operation

or as an alternative:

b. The Permittee shall use the operational data (hours and load) measured and recorded per Conditions 5.2 and 7.1 and calculate monthly NOx emissions, each calendar month, from all emergency generators. All demonstration calculations shall be kept as part of the records required by Condition 7.1. Monthly NOx emissions from fuel combustion at the facility shall be determined using the following equation:

Total Monthly NOx Emissions (tons/month):

$$= \sum_{i=0\%}^{100\%} \left[Emission\ Rate\ at\ Load_i \left(\frac{lb}{hr}\right) X\ Hours\ at\ Load_i \left(\frac{hrs}{month}\right)\right] \div \left(2{,}000\,\frac{lb}{ton}\right)$$

Where:

i = the next highest engine load from the average load over one-hour measured during the run (10%, 25%, 50%, 75%, and 100%).

Emission Rate at Load = the NOx mass emission rate in pounds per hour for $load_i$. For hours where the average recorded load is at 10%, 25%, 50%, 75% or 100% load, the *Emission Rate at* $Load_i$ will be equal to the higher of the corresponding emission rate in the table below or the emission rate determined from performance testing. For runs where the maximum recorded load is at other loads, the *Emission Rate at* $Load_i$ will be equal to the higher of the emission rate listed in the table below or the emission rate determined from performance testing that corresponds to the next highest load.

Hours at Load = total facility wide operating hours at a given calculated load for the given calendar month.

Emission Rate @ Load:

Average Load	10%	25%	50%	75%	100%
Manufacture's Emission Rate (lbs/hr)	4.65	7.29	14.93	26.87	51.76

7.7 The Permittee shall use the monthly records required in Condition 7.6 to calculate the twelve-month rolling total of NOx emissions from the facility for each calendar month. All the calculations shall be kept as part of the records required in Condition 7.1. The Permittee shall notify the Division in writing within 15 days if any of the twelve-month rolling total of the NOx emissions equals or exceeds 25 tons. This notification shall include an explanation of how the Permittee intends attain future compliance with the NOx emission limit in Condition 2.1.
[391-3-1-.02(6)(b)1]

8. Special Conditions

8.1 At any time that the Division determines that additional control of emissions from the facility may reasonably be needed to provide for the continued protection of public health, safety and welfare, 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 that Act.

8.2 The Permittee shall calculate and pay an annual Permit fee to the Division. The amount of the fee shall be determined each year in accordance with the "Procedures for Calculating Air Permit Fees."