

PERMIT NO. 4925-305-0040-S-01-0
ISSUANCE DATE:



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: Lightning Renewables - Broadhurst RNG

Facility Address: 4800 Broadhurst Road, West
Screven, Georgia 31560 Wayne County

Mailing Address: 201 Helios Way, Floor 6
Houston, TX 77079

Facility AIRS Number: 04-13-305-00040

is issued a Permit for the following:

Construction and operation of a 3,200 scfm landfill gas (LFG)-to-renewable natural gas (RNG) processing facility consisting of a treatment system that compresses, cleans, and treats LFG. The operation includes a two-stage adsorber vessel, a thermal oxidizer, and a flare.

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. 29267 dated February 22, 2024; 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 9 pages.



Jeffrey W. Cown, Director
Environmental Protection Division

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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 have an annual heat input limit of 400,000 million Btu per year (MMBtu/yr) based on the gas higher heating value (HHV) for the operation of the Flare (Source Code FLR). [Avoidance of 40 CFR 70 and 391-3-1-.03(2)(c)]
- 2.2 The Permittee shall not cause, let, suffer, permit or allow the emissions into the atmosphere from the Flare (Source Code FLR), Thermal Oxidizer (Source Code TRO) or the Emergency Generator (Source Code EGEN), the opacity of which is equal to or greater than forty (40) percent.
[391-3-1-.02(2)(b)1]

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- 2.3 The Permittee shall not combust any fuel containing more than 2.5 percent sulfur, by weight, in the Flare (Source Code FLR), the Thermal Oxidizer (Source Code TRO) or the Emergency Generator (Source Code EGEN).
[391-3-1-.02(2)(g)2.]
- 2.4 The Permittee shall comply with all applicable provisions of 40 CFR 62 Subpart OOO – Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014.
[40 CFR 62 Subpart OOO]
- 2.5 The Permittee shall design, install, and operate the gas treatment system, in accordance with 40 CFR 62 Subpart OOO – Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014.
[40 CFR 62 Subpart OOO]
- 2.6 The Permittee shall comply with 40 CFR 62.16714 for the LFG treatment system with ID No. LFGT, which includes routing the landfill gas (LFG) to a treatment system. All emissions from any atmospheric vent from the gas treatment system, including any compressor, shall be subject to the requirements of 40 CFR 62.1714(c)(2).
[40 CFR 62.17614]
- 2.7 The Permittee shall maintain and operate the LFG treatment system with ID No. LFGT, at all times when LFG is received from the landfill or direct LFG to the flare/thermal oxidizer as applicable, within the parameter ranges per the manufacturer’s recommendations. In the event the LFG treatment system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.
[391-3-1-.02(2)(a)10, 391-3-1-.03(2)(c), 40 CFR 62.16716(e) and 40 CFR 62.16716(f)]
- 2.8 At all times that LFG is being supplied to the end user for use as a fuel, the LFG shall be processed in a LFG treatment system.
[40 CFR 62.16714 (c)(3) and 40 CFR 62.16730]
- 2.9 At all times when the collected gas is routed to a flare/thermal oxidizer or LFG treatment system, the Permittee shall maintain and operate the equipment within any parameter ranges recommended by the manufacturer.
[40 CFR 62.16716(e), (f) and 391-3-1-.02(6)(b)1]
- 2.10 At all times that any open flare is being used to control LFG, the Permittee shall operate it in accordance with 40 CFR 60.18.
[40 CFR 62.16714(c)(1)]

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- 2.11 At all times the treatment system is in use, the Permittee shall not exceed the parametric thresholds for the treatment system as specified in the treatment system monitoring plan submitted in accordance with 40 CFR 62.16722(d).
[391-3-1-.02(6)(b)1 and 40 CFR 62.16714]
- 2.12 The Permittee shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart A, which contains the NESHAP “General Provisions,” as specified in Table 1 of 40 CFR Part 63 Subpart AAAA, and Subpart AAAA – “National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.”
[40 CFR 63 Subpart A and Subpart AAAA]
- 2.13 The Permittee shall route all emissions from the LFG Treatment System’s (Source Code LFGT) PSA Adsorber System to the Thermal Oxidizer (Source Code TRO) or the Flare (Source Code FLR) as applicable, which shall meet the operational, monitoring, and record keeping requirements of this permit.
[391-3-1-.02(6)(b)1]
- 2.14 The Permittee shall operate at least one of the control devices onsite (thermal oxidizer or flare) at all times when processing LFG.
[391-3-1-.02(6)(b)1]
- 2.15 The Permittee shall not exceed a maximum annual heat input rate to the non-enclosed Flare (Source Code FLR) of 400,000 MMBtu/yr per twelve consecutive months by monitoring the flowrate to not exceed 3,200 scfm to the non-enclosed Flare (Source Code FLR).
[Avoidance of 40 CFR 70 and 391-3-1-.03(2)(c)]
- 2.16 The Permittee shall limit the hours of operation of the engine (Source Code EGEN) such that the total hours of operation do not exceed 500 hours during any consecutive twelve-month period.
[391-3-1-.03(2)(c) and 40 CFR 70 Avoidance]
- 2.17 The Permittee shall comply with all applicable provisions of 40 CFR Part 60 New Source Performance Standards (NSPS), 40 CFR 60, and Subpart A “General Provisions” and Subpart IIII Standards for Stationary Compression Ignition Internal Combustion Engines, for the operation of the engine (Source Code EGEN).
[40 CFR 60, Subparts A and IIII]
- 2.18 The Permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) as found in 40 CFR 63 Subpart ZZZZ, “National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines”, for the operation of the Emergency Generator (Source Code EGEN) by complying with 40 CFR 60 Subpart IIII.
[40 CFR 63, Subparts A and ZZZZ]

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2.19 The Permittee shall not fire in the engine any fuel other than distillate fuel oil 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]

2.20 The Permittee shall comply with all applicable provisions of the Georgia Rule 391-2-1-.02(2)(ggg), "Existing Municipal Solid Waste Landfills," once the Rule becomes an EPA-approved and currently effective state plan implementing 40 CFR 60 Subpart Cf.
[391-3-1-.02(2)(ggg)]

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.

3.2 The Permittee shall comply with Georgia Air Quality Control Rules 391-3-1-.02(2)(n), "Fugitive Dust", for the entire processing facility including all roadways and processing equipment not otherwise subject to any other rule or regulation governing fugitive visible emissions. Subject to this rule, the Permittee shall not cause, let, permit, suffer or allow visible emissions from any fugitive source to equal or exceed 20 percent opacity.
[391-3-1-.02(2)(n)2]

4. Process & Control Equipment

4.1 Routine maintenance shall be performed on all air pollution control equipment. Maintenance records shall be recorded in a permanent form suitable and available for inspection by the Division. The records shall be retained for at least five years following the date of such maintenance.
[391-3-1-.02(6)(b)1]

4.2 The Permittee shall operate the Thermal Oxidizer (Source Code TRO) at or above the minimum temperature established during the most recent performance test except during periods of startup, shutdown, or malfunction. The minimum temperature established shall be at least equal to or higher than the recommended minimum operating temperature provided by the manufacturer of the Thermal Oxidizer (TRO).
[391-3-1-.02(6)(b)1 and Toxic Guideline - 391-3-1-.02(2)(a)1]

4.3 The Permittee shall install, operate and maintain the engine 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)]

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5. Monitoring

5.1 The Permittee shall install, calibrate, maintain, and operate monitoring devices for the measurement of the indicated parameters on the following equipment. Data shall be recorded at the frequency specified below. 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 62.16722(g) and 40 CFR 70.6(a)(3)(i)]

- a. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself, to indicate the continuous presence of a flame within the open flare. [Note: This system need not be operating when all landfill gas (LFG) is being routed to the LFG treatment system and not flowing to the individual flare.]
- b. A device to measure the gas flow rate to the flare and the landfill gas treatment system, at least once every 15 minutes.
- c. Devices to monitor the parameters specified in the treatment system monitoring plan. [Note: The LFG treatment system need not be operating when landfill gas is not being routed to it]
- d. A device to continuously monitor and record the temperature in the combustion zone of the Thermal Oxidizer (Source Code TRO). [Note: This device need not be operating when LFG is not flowing to the LFG treatment system]
- e. Secure the LFG treatment system bypass line (if applicable) valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

5.2 The Permittee shall conduct monitoring as specified in the treatment system monitoring plan submitted in accordance with 62.16726(b)(5)(ii) and Condition 2.11. A record shall be kept documenting the monitoring that was completed at the frequency specified in the plan. These records shall be maintained in a form suitable for inspection or submittal to the Division.

[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]

5.3 The Permittee shall record the total hours of operation of the Thermal Oxidizer (Source Code TRO) and Flare (Source Code FLR) for each calendar month.

[391-3-1-.02(6)(b)1]

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5.4 The Permittee shall install, calibrate, maintain, and operate a non-resettable continuous monitoring system (or device) for the generator to track the hours operated during emergency service and the hours of operation 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. Each system shall meet the applicable performance specification(s) of the Division's monitoring requirements.

[391-3-1-.02(6)(b)1]

5.5 The Permittee shall monitor the methane content of the gas directed to the Flare (Source Code FLR) every fifteen minutes whenever the flare is in operation.

[391-3-1-.02(6)(b)1]

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 60 days after achieving the maximum flow rate at which any new open flare will be operated, but no later than 180 days after initial startup of any such flare, the Permittee shall conduct an initial performance test for visible emissions, determine the heating value of the landfill gas venting to the flare, and calculate exit velocity from the flare using the procedures in 40 CFR 60.18.

[40 CFR 63.1959(e), 40 CFR 62.16718(e)]

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- 6.3 Within 180 days after initial startup, the Permittee shall conduct performance tests to demonstrate the 98% non-methane organic compounds (NMOC) destruction efficiency of the Thermal Oxidizer (Source Code TRO) or as an option reducing to an outlet NMOC concentration of no more than 20 ppmvd as hexane corrected to three percent oxygen and determination of the minimum operating temperature.
[391-3-1-.02(6)(b)1]

7. Notification, Reporting and Record Keeping Requirements

- 7.1 The Permittee shall submit written notification of startup to the Division within 15 days after such date. The notification shall be submitted to:

Mr. Sean Taylor
Stationary Source Compliance Program
4244 International Parkway, Suite 120
Atlanta GA 30354

- 7.2 The Permittee shall develop and implement a site-specific treatment monitoring plan, as required by 40 CFR Part 62 Subpart OOO, to include:
[40 CFR 62.16726(b)(5)(ii)]

- a. Monitoring records of parameters identified in the treatment system monitoring plan and ensuring the treatment system is operating properly for each intended use of the treated landfill gas. At a minimum, records should include records of filtration, dewatering, and compression parameters that ensure the treatment system is operating properly for each intended use of the treated landfill gas.
- b. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.
- c. Documentation of the monitoring methods and ranges, along with justification of their use.
- d. Identify who is responsible (by job title) for data collection.
- e. Processes and methods used to collect the necessary data.
- f. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.
- g. Any readings or monitoring taken while the system is operating that are outside of that established in the current approved treatment monitoring plan.
- h. Any failure to take corrective action for readings that are outside of that established in the approved treatment system monitoring plan.

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- 7.3 The Permittee shall maintain and keep available for inspection, the following records. The records shall be available for inspection or submittal to the Division upon request and contain: [391-3-1-.02(6)(b)1, 40 CFR 62.16716(e), and 40 CFR 62.16724(h)]
- a. Description and duration of all periods when the gas stream (from Broadhurst Environmental Landfill) is diverted from the LFG treatment system to the flare (Source Code FLR) or through a bypass line, as indicated by flow rate measuring devices.
 - b. Any period when the LFG treatment system was not operating for a period exceeding 1 hour.
 - c. The Permittee shall record the date and time when landfill gas is directed to the flare (Source Code FLR). This record shall also include the date and time when landfill gas is directed to the treatment system.
- 7.4 The Permittee shall keep up-to-date and accessible, readily accessible records as specified by 40 CFR 62.16726(b)(1) through (4) measured during the initial performance test or compliance determination for the life of the control equipment. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic format is acceptable.
[40 CFR 62.16726(b)]
- 7.5 The Permittee shall keep, up-to-date, readily accessible continuous records of the flame or flare pilot monitoring specified under 40 CFR 62.16722(c), as specified in Condition 5.1a., for each open flare, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.
[40 CFR 62.16726(c)(4)]
- 7.6 The Permittee shall keep the date, time, and duration of each startup and/or shutdown period, recording the periods when the affected source was subject to the standard applicable to startup and shutdown. The Permittee shall keep a record of each failure to meet an applicable standard, recording the date, time, and duration of each failure, the cause of each failure, a list of the affected sources or equipment for each failure, any actions taken to minimize emissions for each failure, and any corrective actions taken for each failure to return to normal operation.
[40 CFR 63.1983(c)(6) and 40 CFR 63.1983(c)(7)]
- 7.7 The Permittee shall maintain monthly operating records for the generator in emergency and non-emergency service, as recorded on the non-resettable hour meter required for the generator in Condition 5.4. 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]

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7.8 The Permittee shall use monthly operating time data required by Condition 7.7 to calculate monthly the twelve-month rolling total of the operating time for the generator for each consecutive twelve-month period. All the calculations shall be kept as part of the records required in Condition 7.7. The Permittee shall notify the Division in writing within 15 days if any twelve-month rolling total of the hours of operation of the engine exceeds 500 hours. This notification shall include an explanation of how the Permittee intends to comply with Condition 2.16.

[391-3-1-.02(6)(b)1]

7.9 The Permittee shall demonstrate compliance with emission limits as specified in 40 CFR 60, Subpart IIII for the generator by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b), for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications. These records shall be maintained in a format suitable for inspection or submittal.

[40 CFR 60.4211(c)]

7.10 The Permittee shall keep records verifying that each shipment of fuel oil received for firing the generator at the facility complies with the applicable requirements in Condition 2.19. Verification shall consist of the fuel oil receipts and/or fuel supplier certifications, or results of analysis 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 of submittal for five (5) years from the date of record.

[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 Application & Annual Permit Fees."