

Part 70 Operating Permit Amendment

Permit Amendment No.: 4953-011-0014-V-03-1 Effective Date: July 3, 2012

Facility Name: **Chambers R&B Landfill**
610 Bennett Road
Homer, Georgia 30547 Banks County

Mailing Address: Waste Management / Chambers R & B Landfill
3001 South Pioneer Drive
Smyrna, GA 30083

Parent/Holding Company: Waste Management, Inc. / Chambers R&B Landfill, Inc.

Facility AIRS Number: 04-13-011-00014

In accordance with the provisions of the Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Georgia Rules for Air Quality Control, Chapter 391-3-1, adopted pursuant to and in effect under the Act, the Permittee described above is issued a construction and operating permit for:

A landfill gas to energy (LFGTE) facility, consisting of a landfill gas treatment system and six internal combustion (IC) engines fueled by landfill gas. Each generator set has a power generation capacity of 1.6 megawatts of electricity.

This Permit Amendment 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 Amendment and Permit No. 4953-011-0014-V-03-0. Unless modified or revoked, this Permit Amendment expires upon issuance of the next Part 70 Permit for this source.

This Permit Amendment 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. 20161 dated January 7, 2011, and revised May 19, 2011; any other applications upon which this Permit Amendment or Permit No. 4953-011-0014-V-03-0 are based; supporting data entered therein or attached thereto; or any subsequent submittal or supporting data; or for any alterations affecting the emissions from this source.

This Permit Amendment is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **20** pages, which pages are a part of this Permit Amendment, and which hereby become part of Permit No. 4953-011-0014-V-03-0.

[Signed]

Director
Environmental Protection Division

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PART 1.0 FACILITY DESCRIPTION**1.3 Process Description of Modification**

Chambers R&B Landfill has proposed to construct a landfill gas to energy facility to use treated landfill gas (LFG) as fuel to generate electricity. Chambers R&B Landfill accepts municipal solid waste and deposits it into the ground before covering the waste with soil. Once the waste is covered, the material starts a process of decomposition, resulting in the formation of landfill gas, which is extracted and collected from the landfill in a gas extraction and collection header. The landfill gas is currently combusted in three open flares.

Chambers R&B Landfill is proposing the installation of a LFG treatment system and six Caterpillar G3520C internal combustion engines (SN01, SN02, SN03, SN04, SN05, and SN06), each powering an electrical generator. The treatment system will filter, de-water, and compress the LFG via a condensate knockout tank, blower, and a 10 micron filter prior to use as fuel in the internal combustion engines. Each Caterpillar G3520C internal combustion engine is rated at 2,233 bhp with a heat input of 17.87 MMBtu/hr. The engines are designed to use the LFG as fuel with each generator set able to produce up to 1,600 kilowatts (kW) of electricity. The three existing flares (F1, F2, and F3), currently used to combust the landfill gas, will serve as backup combustion devices once the LFGTE facility commences operation.

Chambers R&B Landfill is also proposing the operation of a leachate concentrator in an alternative operating scenario. The landfill will have the flexibility to operate the IC engines either with or without the leachate concentrator. In this process the heat content from the exhaust gas from three of the engines is used to evaporate water in the leachate. When the leachate concentrator is in operation, 100 percent of the exhaust from IC engines SN01 and SN02 and approximately 50 percent of the exhaust from IC engine SN03 is directed through the leachate concentrator. None of the exhaust from IC engines SN04, SN05, and SN06 will be directed through the leachate concentrator.

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PART 3.0 REQUIREMENTS FOR EMISSION UNITS

Note: Except where an applicable requirement specifically states otherwise, the averaging times of any of the Emissions Limitations or Standards included in this permit are tied to or based on the run time(s) specified for the applicable reference test method(s) or procedures required for demonstrating compliance.

3.1.1 Additional Emission Units

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
LF1	Landfill	40 CFR Part 60 Subpart A 40 CFR Part 60 Subpart WWW 40 CFR Part 61 Subpart A 40 CFR Part 61 Subpart M 40 CFR Part 63 Subpart A 40 CFR Part 63 Subpart AAAA 391-3-1-.02(2)(n)	2.2.1, 2.2.2, 2.2.3, 3.3.1 through 3.3.4, 3.3.7, 3.4.1, 4.2.1, 5.2.1 through 5.2.9, 5.2.12, 6.1.7, 6.2.1 through 6.2.17, 6.2.20	GCCS F1 F2 F3 TS	Gas Collection and Control System Open Flare F1 Open Flare F2 Open Flare F3 Landfill Gas Treatment System
SN01	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None
SN02	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) 40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None
SN03	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) 40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None
SN04	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) 40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None
SN05	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) 40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None

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Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
SN06	Caterpillar G3520C Spark Ignition Internal Combustion Engine	391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm) 40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart JJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ	3.3.5, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.4.2, 4.2.2 through 4.2.6, 5.2.1, 5.2.10, 5.2.11, 6.1.7, 6.2.7, 6.2.18, 6.2.19	None	None

* Generally applicable requirements contained in this permit may also apply to emission units listed above. The lists of applicable requirements/standards and corresponding permit conditions are intended as a compliance tool and may not be definitive.

3.2 Equipment Emission Caps and Operating Limits

None Applicable.

3.3 Equipment Federal Rule Standards

Modified Condition

3.3.2 The Permittee shall operate the gas collection and control system (GCCS) as follows:
[40 CFR 60.753(a)-(f), 40 CFR 60.752(b)2(iii)(A), and 40 CFR 60.751] [Vault NS-044-OL, 09/11]

- a. Operate the gas collection system such that gas is collected from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:
[40 CFR 60.753(a)]
 - i. 5 years or more if active or
 - ii. 2 years or more if closed or at final grade.
- b. Operate the gas collection system with negative pressure at each wellhead except under the following conditions:
[40 CFR 60.753(b)]
 - i. A fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid fire. These records shall be submitted with the reports required by Condition 6.1.4 and specified in 40 CFR 60.757(f).
 - ii. Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.
 - iii. A decommissioned well. A well may experience a static positive pressure after being shut down because of declining landfill gas (LFG) flows. All design changes shall be approved by the Division.

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- c. Operate each wellhead with a landfill gas temperature less than 55°C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall include data demonstrating that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. Use of this elevated parameter is subject to approval by the Division.
[40 CFR 60.753(c)]
- d. Operate the gas collection system so that the ambient methane concentration is less than 500 parts per million (ppm) above background at the surface of the landfill.
[40 CFR 60.753(d)]
- e. Operate the GCCS such that all collected gases are vented to a control system (**gas treatment system (TS)** or open flare(s) (F1, F2, and/or F3), **or any other approved incineration device**), designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). Gases emitted through any atmospheric vent in a treatment system must be controlled under the requirements of 40 CFR 60.752(b)(2)(iii)(A) or (B). Treated landfill gas shall not be vented directly to the atmosphere. If the control system is inoperable, the gas mover system shall be shut down and all valves in the GCCS contributing to venting of the gas to the atmosphere shall be closed within one hour.
[40 CFR 60.753(e)]
- f. Operate the flares (F1, F2, and/or F3) or **treatment system (TS)** at all times when the collected gas is routed to the system.
[40 CFR 60.753(f)]
- g. **If a treatment system is used to comply with Subpart WWW, the treatment system shall filter, de-water via an air-to-air heat exchanger and compress the LFG prior to combustion in the IC engines.**
[40 CFR 60.752 (b) 2(iii)(C) and 40 CFR 60.751]
- h. At all times when the collected gas is routed to a flare or **LFG treatment system**, the Permittee shall maintain and operate that equipment within any parameter ranges recommended by the manufacturer or approved in the design plan submitted in accordance with Condition 3.3.7.
[40 CFR 60.753(e),(f) and 40 CFR 60.756(d)]

New Conditions

- 3.3.5 The Permittee shall comply with all applicable provisions of the New Source Performance Standards (NSPS) as found in 40 CFR 60 Subpart A – “General Provisions,” as specified in Table 3 of 40 CFR 60 Subpart JJJJJ, and Subpart JJJJ – “New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines” for the operation of the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06).
[40 CFR 60 Subpart A, 40 CFR 60 Subpart JJJJ, and 40 CFR 60.4246]

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- 3.3.6 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 A – “General Provisions,” and Subpart ZZZZ – “National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines” for the operation of the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06).
[40 CFR 63 Subparts A and ZZZZ]
- 3.3.7 The Permittee shall design, install, and operate the proposed gas treatment system, which includes a condensate knockout tank, an air-to-air heat exchanger, blower, and a minimum 10 micron filter, in accordance with 40 CFR 60 Subpart WWW - “Standards of Performance for Municipal Solid Waste Landfills.” As required by 40 CFR 60.752(b)(2)(i), the Permittee shall submit the design of the gas treatment system to the Division for approval within 30 days after the effective date of this permit. The Permittee shall operate the gas treatment system in accordance with the provisions of Subpart WWW.
[40 CFR 60.756(d) and 40 CFR 60.752(b)]
- 3.3.8 The Permittee shall, to the extent practicable, maintain and operate each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06) in a manner consistent with good air pollution control practice for minimizing emissions, and must keep a maintenance plan and records of conducted maintenance.
[391-3-1-.02(6)(b)1 and 40 CFR 60.4243(b)(2)(ii)]
- 3.3.9 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06), any gases which contain:
- a. Carbon monoxide (CO) in excess of 3.5 g/bhp-hr.
[40 CFR 52.21(j); 40 CFR 60.4233(e) and Table 1 to Subpart JJJJ of Part 60 (subsumed)]
 - b. Nitrogen Oxides (NO_x) in excess of 0.6 g/bhp-hr.
[40 CFR 52.21(j); 40 CFR 60.4233(e) and Table 1 to Subpart JJJJ of Part 60 (subsumed), and 391-3-1-.02(2)(mmm) (subsumed)]
 - c. Volatile organic compounds (VOC), excluding formaldehyde, in excess of 1.0 g/bhp-hr or 80 ppmvd at 15 percent oxygen.
[40 CFR 60.4233(e) and Table 1 to Subpart JJJJ of Part 60]
 - d. Volatile organic compounds (VOC), including formaldehyde, in excess of 0.652 g/bhp-hr.
[40 CFR 52.21(j); 40 CFR 60.4233(e) and Table 1 to Subpart JJJJ of Part 60 (subsumed)]
 - e. PM₁₀ and PM_{2.5} (filterable plus condensable particulate matter) in excess of 0.172 g/bhp-hr.
[40 CFR 52.21(j)]
 - f. Sulfur dioxide (SO₂) in excess of 1.52 lb/hr.
[40 CFR 52.21 Avoidance and 391-3-1-.02(2)(g)2. (subsumed)]

- 3.3.10 The Permittee shall combust only landfill gas in the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06).
[40 CFR 52.21 Avoidance, 40 CFR 63.6625(c) and 63.6655(c)]

3.4 Equipment SIP Rule Standards

New Condition

- 3.4.2 The Permittee shall not cause, let, suffer, permit, or allow any gases from the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06), which exhibit visible emissions, the opacity of which is equal to or greater than forty percent.
[391-3-1-.02(2)(b)] [Vault GA-024-EL, 09/11]

3.5 Equipment Standards Not Covered by a Federal or SIP Rule and Not Instituted as an Emission Cap or Operating Limit

None Applicable.

PART 4.0 REQUIREMENTS FOR TESTING**4.1 General Testing Requirements**

Modified Condition

- 4.1.3 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 Sections 3.2, 3.3, and 3.4 which pertain to the emission units listed in Section 3.1 are as follows:
- a. **Method 1 for the determination of sampling location and number of traverse points.**
 - b. Method 2, 2A, 2C, or 2D, as appropriate, for determination of velocity and volumetric flow rate to the flare.
 - c. Method 3A or 3C for the determination of oxygen concentration.
 - d. Method 3C for the determination of nitrogen concentration.
 - e. Method 9 and the procedures contained in Section 1.3 of the above referenced document for the determination of opacity.
 - f. Method 18 for the determination of organic component concentration in the gas stream to the flare.
 - g. Method 21 for the determination of surface methane concentration.
 - h. Method 22 for the determination of visible emissions from a flare.
 - i. ASTM D1946 for the determination of hydrogen and carbon monoxide concentrations in the gas stream to the flare.
 - j. ASTM D2382 for the determination of the net heat of combustion of each component in the gas stream to the flare if published values are not available or cannot be calculated.
 - k. **Method 201 or 201A in conjunction with Method 202 for the determination of particulate matter concentration. Method 5 in conjunction with Method 202 may be used as an alternative. The minimum sample time shall be one hour per run.**
 - l. **Method 3B for the determination of the emissions rate correction factor or excess air. Method 3A may be used as an alternative to Method 3B.**
 - m. **Method 6 or 6C for the determination of sulfur dioxide concentration. The minimum sample time shall be one hour per run.**

- n. **Method 7 or 7E for the determination of nitrogen oxides concentration. The minimum sample time shall be one hour per run.**
- o. **Method 10 for the determination of carbon monoxide concentration. The minimum sample time shall be one hour per run.**
- p. **Method 25A for the determination of volatile organic compounds. The minimum sample time shall be one hour per run.**
- q. **Method 323 for the determination of formaldehyde concentration. The minimum sample time shall be one hour per run.**

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)]

4.2 Specific Testing Requirements

New Conditions

4.2.2 Within 180 days of startup of each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), the Permittee shall conduct initial performance tests for carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC) including formaldehyde, particulate matter (PM₁₀ and PM_{2.5}), and sulfur dioxide (SO₂) emissions to demonstrate compliance with the emission limits in Condition 3.3.9. During each test run on each engine the Permittee shall, using the devices required by Condition 5.2.1, measure and record the engine operating parameters listed below. Additionally, a performance test shall be conducted on at least one engine at the minimum expected operating load point.

[391-3-1-.02(6)(b)1(i), 40 CFR 52.21, 40 CFR 60.4243(b)(2)(ii), 40 CFR 60.4244, and 40 CFR 70.6(a)(3)(i)]

- a. Manifold temperature
- b. Manifold pressure
- c. Ignition timing
- d. Engine load (generator output, megawatts)

Data for the engine parameters shall be recorded at least once every 10 minutes during each test run and all data shall be included in the test report.

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4.2.3 The Permittee shall, using the engine operating data required to be obtained by Condition 4.2.2, establish the maximum manifold temperature and the acceptable range (that which indicates compliance) for the manifold pressure, ignition timing, and engine load for the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06). The maximum manifold temperature and the ranges for the manifold pressure, ignition timing, and engine load shall be included in the emissions test report and shall be used for reporting excursions as specified in Condition 6.1.7.

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

4.2.4 Following the test required by Condition 4.2.2, the Permittee shall conduct subsequent performance testing every 8,760 hours of operating time or 3 years, whichever comes first, to demonstrate compliance with the NO_x, CO, and VOC emission limits.

[391-3-1-.02(6)(b)1(i), 40 CFR 52.21, and 40 CFR 60.4243(b)(2)(ii)]

4.2.5 Following the test required by Condition 4.2.2, the Permittee shall conduct subsequent performance testing every 5 years to demonstrate compliance with the PM₁₀ and PM_{2.5} emission limits. PM₁₀ and PM_{2.5} testing shall be conducted on all IC engines (SN01, SN02, SN03, SN04, SN05, and SN06).

As an alternative to conducting PM₁₀ and PM_{2.5} testing on all IC engines (SN01, SN02, SN03, SN04, SN05, and SN06) every five years, the Permittee shall test one engine every year on a rotating basis.

[391-3-1-.02(6)(b)1(i) and 40 CFR 52.21]

4.2.6 The Permittee shall conduct performance testing specified in Conditions 4.2.2 and 4.2.4, according to the procedures per 40 CFR 60.4244, which includes the following:

[391-3-1-.02(6)(b)1(i), 40 CFR 60.4244, and 40 CFR 52.21]

- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 of 40 CFR 60 Subpart JJJJ.
- b. The Permittee may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8(c). If the engine is non-operational, the Permittee need not start up the engine solely to conduct a performance test; however, the Permittee must conduct the performance test immediately upon startup of the engine.
- c. The Permittee must conduct three separate test runs for each performance test required in this section, as specified in 40 CFR 60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.
- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using the equation below:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

- ER = Emission rate of NOx in g/HP-hr.
- C_d = Measured NOx concentration, in parts per million by volume (ppmv).
- 1.912 x 10⁻³ = Conversion constant for ppm NOx to grams per standard cubic meter at 20 degrees Celsius.
- Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
- T = Time of test run, in hours.
- HP-hr = Brake work of the engine, in horsepower-hour (HP-hr).

- e. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using the equation below:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

- ER = Emission rate of CO in g/HP-hr.
- C_d = Measured CO concentration, in ppmv.
- 1.164 x 10⁻³ = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.
- Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
- T = Time of test run, in hours.
- HP-hr = Brake work of the engine, in horsepower-hour (HP-hr).

- f. For purposes of 40 CFR 60 Subpart JJJJ, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using the equation below:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

- ER = Emission rate of VOC in g/HP-hr.
- C_d = VOC concentration measured as propane, in ppmv.
- 1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.
- Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
- T = Time of test run, in hours.
- HP-hr = Brake work of the engine, in horsepower-hour (HP-hr).

- g. If the Permittee chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using the equations below.

$$RF_i = \frac{Cm_i}{Ca_i}$$

Where:

- RF_i = Response factor of compound i when measured with EPA Method 25A.
- Cm_i = Measured concentration of compound i, in ppmv as carbon.
- Ca_i = True concentration of compound i, in ppmv as carbon.

$$Ci_{corr} = RF_i \times Ci_{meas}$$

Where:

- C_{i,corr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.
- C_{i,meas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

The corrected VOC concentration can then be placed on a propane basis using the equation below.

$$C_{Peq} = 0.6098 \times Ci_{corr}$$

Where:

- C_{Peq} = Concentration of compound i, in mg of propane equivalent per DSCM.

PART 5.0 REQUIREMENTS FOR MONITORING (Related to Data Collection)**5.2 Specific Monitoring Requirements**

Modified Condition

5.2.1 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.

[40 CFR 52.21, 391-3-1-.02(6)(b)1, 40 CFR 70.6(a)(3)(i), 40 CFR 60.756(c), and 40 CFR 63.6625(c)]

- a. A gas flow rate measuring device that records flow to each control device every 15 minutes.
- b. 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 for any flare.
- c. **Devices to monitor the parameters specified in the current approved treatment system monitoring plan. [Note: The treatment system need not be operating when landfill gas is not being routed to it.]**
- d. **A device to continuously measure the landfill gas flow rate to the IC Engines. On a daily basis, the consumption of LFG combusted in the engines shall be measured and recorded.**
[40 CFR 63.6625(c)]
- e. **A non-resettable hour meter on each IC engine. Data shall be recorded monthly.**
[40 CFR 60.4243(b)(2)(ii)]
- f. **A device, on each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), to measure the manifold temperature. Data shall be recorded at the frequency specified in Condition 5.2.10.**
- g. **A device, on each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), to measure the manifold pressure. Data shall be recorded at the frequency specified in Condition 5.2.10.**
- h. **A device, on each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), to measure the ignition timing. Data shall be recorded at the frequency specified in Condition 5.2.10.**
- i. **A device, on each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), to measure the engine load (generator output, megawatts). Data shall be recorded at the frequency specified in Condition 5.2.10.**

New Conditions

- 5.2.10 Within 120 days after startup of each of the IC engines (SN01, SN02, SN03, SN04, SN05, and SN06), the Permittee shall, using the devices required by Condition 5.2.1, monitor operation of the IC engines according to the following plan:
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]
- a. On a weekly basis, the manifold temperature, manifold pressure, ignition timing, and engine load of each IC engine shall be measured and recorded. The duration of the measurement period shall be a minimum of 15 minutes. Data for each parameter shall be recorded at one (1) minute intervals and an arithmetic average determined for each engine parameter.
 - b. Weekly measurements shall be continued on an engine until the average value for the manifold pressure, ignition timing, and engine load are within the ranges established by Condition 4.2.3, and the manifold temperature is less than the maximum value established by Condition 4.2.3, for three (3) consecutive weekly measurements, at which time the measurements may be conducted on a monthly basis. Measurement period duration, data recording frequency, and parametric average shall be as specified in a. of this condition.
 - c. Following any monthly measurement of the manifold temperature greater than the maximum value established by Condition 4.2.3, and any monthly measurement of the manifold pressure, ignition timing, and engine load, which is outside the range established by Condition 4.2.3, the Permittee shall conduct measurements on the engine according to the schedule described in b. of this condition.
- 5.2.11 The Permittee shall monitor the emissions of NO_x from each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06), during the period from May 1 through September 30 each year by performing a test measurement to demonstrate that the NO_x concentrations corrected to 15 percent oxygen are below the applicable standard. The test measurements shall use the following procedures:
[391-3-1-.02(6)(b)1 and PTM Section 2.120] [Vault GA-015-MO, 02/10]
- a. The measurements shall be performed no earlier than March 1 and no later than May 1 of each calendar year. Should an affected source become operational during the period from May 1 to September 20, a measurement shall be performed within the first 120 hours of operation.
 - b. The measurement shall be performed using the manufacturer recommended settings for reduced NO_x emissions. In the event an SCR is also used to achieve the NO_x emissions standard, the settings for reagent (e.g., urea or ammonia) injection rate at each load level shall be recorded and maintained. Should a change in the reagent injection rate be required at any load, a new measurement at that load range shall be conducted to demonstrate that the NO_x concentrations of the emissions are below the applicable standard. The operation and maintenance of the SCR shall be conducted in a manner consistent with good operation practices and in a manner to minimize excess emissions of ammonia.

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- c. The Permittee shall carry out a measurement consisting of a minimum of three test measurements to demonstrate that the average emissions are less than or equal to the applicable standards. Each test measurement shall be a minimum of 30 minutes in length. One test measurement shall be conducted at the minimum load during the past 12 months, one test measurement at the highest load operated during the past 12 months, and one test measurement at the average load operated during the past 12 months.
 - d. All measurements of NO_x emissions and oxygen concentrations shall be conducted using the procedures of the American Society for Testing and Materials Standard (ASTM) Test Method for Determination of NO_x, Carbon Monoxide (CO), and Oxygen Concentrations in emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, ASTM D 6522; or procedures of Gas Research Institute Method GRI-96-0008, EPA/EMC Conditional Test Method (CTM-30) Determination of NO_x, Carbon Monoxide (CO), and Oxygen Concentrations in emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers or the Procedures of EPA Reference Methods 7E and 3A.
 - e. The Permittee shall maintain records of all measurements performed in accordance with this section. These records shall indicate the date and time the measurements were performed, the NO_x and oxygen values determined during the measurements, the reagent injection rate settings of the SCR (at 10 percent - 100 percent load as tested), if applicable, the average inlet temperature to the catalyst bed during the measurements, and the pressure drop across the catalyst bed at the beginning of the measurement.
 - f. Following the measurements, from the period May 1 through September 30 of each year, the Permittee shall operate the affected facility using the settings determined during the annual measurement. The Permittee shall certify that no adjustments have been made to the affected facility by the owner, operator and/or any third party since the measurements in paragraph c. of this condition were conducted. This certification shall be made in writing no later than October 15 of each year and shall be maintained with the records required to be maintained in paragraph e. of this condition.
- 5.2.12 The Permittee shall conduct monitoring as specified in the current approved treatment system monitoring plan submitted in accordance with 40 CFR 60.756(d) and Condition 3.3.7. A record shall be kept to document the monitoring 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)]

PART 6.0 OTHER RECORD KEEPING AND REPORTING REQUIREMENTS**6.1 General Record Keeping and Reporting Requirements**

Modified Condition

6.1.7 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition 6.1.4, the following excess emissions, exceedances, and excursions shall be reported:

[391-3-1-.02(6)(b)1, 40 CFR 70.6(a)(3)(i), and 40 CFR 60.753(e)]

- a. Excess emissions: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

None required to be reported in accordance with Condition 6.1.4.

- b. Exceedances: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)

i. On any gas collection well, any reading of gauge pressure that is not negative.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]

ii. On any gas collection well, any reading of temperature that equals or exceeds 55 °C (131 °F), unless a higher temperature has been approved by the Division, in accordance with Condition 3.3.2c.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]

iii. On any gas collection well, any reading of nitrogen concentration that equals or exceeds 20 percent or oxygen concentration that equals or exceeds 5 percent, unless a higher percentage has been approved by the Division, in accordance with Condition 3.3.2c.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]

iv. Any reading of surface methane concentration that equals or exceeds 500 ppm above background concentration.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]

v. **Firing any fuel in the IC Engines not meeting the requirements of Condition 3.3.10.**
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]

- c. Excursions: (means for the purpose of this Condition and Condition 6.1.4, any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of the monitoring)

- i. Any failure to follow the procedures of the Dust Suppression Plan required by Condition 6.2.6.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]
- ii. Any failure to implement, or maintain on site the Startup, Shutdown and Malfunction Plan required by Condition 3.3.4.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)] [Vault NS-044-RR, 09/11]
- iii. **Any measurement of manifold temperature for any IC engine, which is greater than the maximum temperature established in accordance with the requirements of Condition 4.2.3.**
- iv. **Any measurement of manifold pressure for any IC engine, which is outside the range established in accordance with the requirements of Condition 4.2.3.**
- v. **Any measurement of ignition timing for any IC engine, which is outside the range established in accordance with the requirements of Condition 4.2.3.**
- vi. **Any measurement of engine load (generator output, megawatts) for any IC engine, which is outside the range established in accordance with the requirements of Condition 4.2.3.**
- vii. **Any readings or monitoring taken while the system is operating that are outside of that established in the current approved treatment monitoring plan.**
- viii. **Any failure to take corrective action for readings that are outside of that established in the approved treatment system monitoring plan.**

6.2 Specific Record Keeping and Reporting Requirements

Modified Condition

6.2.7 The Permittee shall submit a report of the following information for the semiannual periods ending June 30 and December 31 of each year. The report shall be postmarked by August 29 or February 28, respectively.
[391-3-1-.02(6)(b)1, 40 CFR 70.6(a)(3)(i), 40 CFR 70.6(a)(3) (iii)(A), and 40 CFR 60.757(f)]

- a. Description and duration of all periods when the gas stream is diverted from a control device through a bypass line, as indicated by the flow rate measuring device or monthly inspection of bypass line valve, as applicable.
- b. Description and duration of all periods when the control devices were not operating for a period exceeding 1 hour and the total length of time that no control device was operating.
- c. All periods when the collection system was not operating in excess of 5 days.

- d. The location of each exceedance of the 500 parts per million methane concentration limit and the concentration recorded at each location for which an exceedance was recorded in the previous month.
- e. The date of installation and the location of each well or collection system expansion added pursuant to Conditions 5.2.4, 5.2.6, and 5.2.7.

For operation of IC engines which fire landfill gas equivalent to 10 percent or more of the gross heat input on an annual basis:

- f. The fuel flow rate and the heating values used in the calculations. A demonstration that the percentage of heat input provided by landfill gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.**
- g. The operating limits provided in the federally enforceable permit, and any deviations from these limits.**
- h. Any problems or errors suspected with the meters.**

New Conditions

- 6.2.18 The Permittee shall submit the following written notifications to the Division:
[391-3-1-.02(6)(b)1, 40 CFR 70.6 (a)(3)(i), 40 CFR 60.7(a)(1), and 40 CFR 60.4245(c)]
- a. An initial notification within 30 days after the date of construction of each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06) as required in 40 CFR 60.7(a)(1). The notification must include:
 - i. Name and address of the owner or operator.
 - ii. Address where the engines are located.
 - iii. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.
 - iv. Emission control equipment.
 - v. Fuel used.
 - b. The actual date of initial startup that each IC engine (SN01, SN02, SN03, SN04, SN05, and SN06) becomes operational, within 15 days after such date(s).
- 6.2.19 The Permittee shall keep the records of the following. These records shall be maintained in a format suitable for inspection or submittal.
[40 CFR 60.4245(a) and 40 CFR 63.6655(c)]

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- a. All notifications submitted to comply with 40 CFR 60 Subpart JJJJ and all documentation supporting any notification.
 - b. Maintenance conducted on the engine.
 - c. If the engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.
 - d. If the engine is not a certified engine, documentation that the engine meets the emission standards.
 - e. Records of the daily fuel usage monitors.
- 6.2.20 The Permittee shall record the date and time when landfill gas is not directed to either the flare(s) or the treatment system.
[391-3-1-.02(6)(b)]

PART 7.0 OTHER SPECIFIC REQUIREMENTS

7.1 Operational Flexibility Associated with this Amendment

Chambers R&B Landfill is proposing the operation of a leachate concentrator. The landfill will have the flexibility to operate the IC engines either with or without the leachate concentrator. In this process the heat content from the exhaust gas from three of the engines is used to evaporate water in the leachate. When the leachate concentrator is in operation, 100 percent of the exhaust from IC engines SN01 and SN02 and approximately 50 percent of the exhaust from IC engine SN03 is directed through the leachate concentrator. None of the exhaust from IC engines SN04, SN05, and SN06 will be directed through the leachate concentrator.

Attachments

- A. List of Standard Abbreviations and List of Permit Specific Abbreviations
- B. Insignificant Activities Checklist, Insignificant Activities Based on Emission Levels and Generic Emission Groups
- C. List of References

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INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
Laboratories and Testing	1. Laboratory fume hoods and vents associated with bench-scale laboratory equipment used for physical or chemical analysis.	
	2. Research and development facilities, quality control testing facilities and/or small pilot projects, where combined daily emissions from all operations are not individually major or are support facilities not making significant contributions to the product of a collocated major manufacturing facility.	
Pollution Control	1. Sanitary waste water collection and treatment systems, except incineration equipment or equipment subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	2. On site soil or groundwater decontamination units that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	3. Bioremediation operations units that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	4. Landfills that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
Industrial Operations	1. Concrete block and brick plants, concrete products plants, and ready mix concrete plants producing less than 125,000 tons per year.	
	2. Any of the following processes or process equipment which are electrically heated or which fire natural gas, LPG or distillate fuel oil at a maximum total heat input rate of not more than 5 million BTU's per hour: <ul style="list-style-type: none"> i) Furnaces for heat treating glass or metals, the use of which do not involve molten materials or oil-coated parts. ii) Porcelain enameling furnaces or porcelain enameling drying ovens. iii) Kilns for firing ceramic ware. iv) Crucible furnaces, pot furnaces, or induction melting and holding furnaces with a capacity of 1,000 pounds or less each, in which sweating or distilling is not conducted and in which fluxing is not conducted utilizing free chlorine, chloride or fluoride derivatives, or ammonium compounds. v) Bakery ovens and confection cookers. vi) Feed mill ovens. vii) Surface coating drying ovens 	
	3. Carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, shot blasting, shot peening, or polishing; ceramics, glass, leather, metals, plastics, rubber, concrete, paper stock or wood, also including roll grinding and ground wood pulping stone sharpening, provided that: <ul style="list-style-type: none"> i) Activity is performed indoors; & ii) No significant fugitive particulate emissions enter the environment; & iii) No visible emissions enter the outdoor atmosphere. 	
	4. Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy (e.g., blueprint activity, photographic developing and microfiche).	
	5. Grain, food, or mineral extrusion processes	
	6. Equipment used exclusively for sintering of glass or metals, but not including equipment used for sintering metal-bearing ores, metal scale, clay, fly ash, or metal compounds.	
	7. Equipment for the mining and screening of uncrushed native sand and gravel.	
	8. Ozonization process or process equipment.	
	9. Electrostatic powder coating booths with an appropriately designed and operated particulate control system.	
	10. Activities involving the application of hot melt adhesives where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	
	11. Equipment used exclusively for the mixing and blending water-based adhesives and coatings at ambient temperatures.	
	12. Equipment used for compression, molding and injection of plastics where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	

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	13. Ultraviolet curing processes where VOC emissions are less than 5 tons per year and HAP emissions are less than 1,000 pounds per year.	
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INSIGNIFICANT ACTIVITIES CHECKLIST

Category	Description of Insignificant Activity/Unit	Quantity
Storage Tanks and Equipment	1. All petroleum liquid storage tanks storing a liquid with a true vapor pressure of equal to or less than 0.50 psia as stored.	1
	2. All petroleum liquid storage tanks with a capacity of less than 40,000 gallons storing a liquid with a true vapor pressure of equal to or less than 2.0 psia as stored that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	3. All petroleum liquid storage tanks with a capacity of less than 10,000 gallons storing a petroleum liquid.	
	4. All pressurized vessels designed to operate in excess of 30 psig storing petroleum fuels that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	5. Gasoline storage and handling equipment at loading facilities handling less than 20,000 gallons per day or at vehicle dispensing facilities that are not subject to any standard, limitation or other requirement under Section 111 or 112 (excluding 112(r)) of the Federal Act.	
	6. Portable drums, barrels, and totes provided that the volume of each container does not exceed 550 gallons.	1
	7. All chemical storage tanks used to store a chemical with a true vapor pressure of less than or equal to 10 millimeters of mercury (0.19 psia).	

INSIGNIFICANT ACTIVITIES BASED ON EMISSION LEVELS

Description of Emission Units / Activities	Quantity
n/a	n/a

ATTACHMENT B (continued)

GENERIC EMISSION GROUPS

Emission units/activities appearing in the following table are subject only to one or more of Georgia Rules 391-3-1-.02 (2) (b), (e) &/or (n). Potential emissions of particulate matter, from these sources based on TSP, are less than 25 tons per year per process line or unit in each group. Any emissions unit subject to a NESHAP, NSPS, or any specific Air Quality Permit Condition(s) are not included in this table.

Description of Emissions Units / Activities	Number of Units (if appropriate)	Applicable Rules		
		Opacity Rule (b)	PM from Mfg Process Rule (e)	Fugitive Dust Rule (n)
n/a	n/a	n/a	n/a	n/a

The following table includes groups of fuel burning equipment subject only to Georgia Rules 391-3-1-.02 (2) (b) & (d). Any emissions unit subject to a NESHAP, NSPS, or any specific Air Quality Permit Condition(s) are not included in this table.

Description of Fuel Burning Equipment	Number of Units
Fuel burning equipment with a rated heat input capacity of less than 10 million BTU/hr burning only natural gas and/or LPG.	n/a
Fuel burning equipment with a rated heat input capacity of less than 5 million BTU/hr, burning only distillate fuel oil, natural gas and/or LPG.	n/a
Any fuel burning equipment with a rated heat input capacity of 1 million BTU/hr or less.	n/a

ATTACHMENT C**LIST OF REFERENCES**

1. The Georgia Rules for Air Quality Control Chapter 391-3-1. All Rules cited herein which begin with 391-3-1 are State Air Quality Rules.
2. Title 40 of the Code of Federal Regulations; specifically 40 CFR Parts 50, 51, 52, 60, 61, 63, 64, 68, 70, 72, 73, 75, 76 and 82. All rules cited with these parts are Federal Air Quality Rules.
3. *Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, Procedures for Testing and Monitoring Sources of Air Pollutants.*
4. *Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, Procedures for Calculating Air Permit Fees.*
5. Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources. This information may be obtained from EPA's TTN web site at www.epa.gov/ttn/chief/ap42/index.html.
6. The latest properly functioning version of EPA's **TANKS** emission estimation software. The software may be obtained from EPA's TTN web site at www.epa.gov/ttn/chief/software/tanks/index.html.
7. The Clean Air Act (42 U.S.C. 7401 et seq).
8. White Paper for Streamlined Development of Part 70 Permit Applications, July 10, 1995 (White Paper #1).
9. White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program, March 5, 1996 (White Paper #2).