

Facility Name: **CII Methane Management III LFGTE Plant**
 City: Winterville
 County: Clarke
 AIRS #: 04-13-05900084

Application #: TV-21093
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 Permit No: 4911-059-0102-V-01-0

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Introduction

This narrative is being provided to assist the reader in understanding the content of the attached draft Part 70 operating permit. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act Amendments of 1990. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Chapter I of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The primary purpose of this permit is to consolidate and identify existing state and federal air requirements applicable to **CII Methane Management III LFGTE Plant** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. It initially describes the facility receiving the permit, the applicable requirements and their significance, and the methods for determining compliance with those applicable requirements. This narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

I. Facility Description

The Facility Description may be presented in outline or narrative form. It must contain the information contained in each of the following subsections, preferably in a similar order.

A. Facility Identification

1. Facility Name: CII Methane Management III LFGTE Plant
2. Parent/Holding Company Name: C2i Methane Partners
3. Previous and/or Other Name(s)

This is a new facility and so could have no previous names.

4. Facility Location

5700 Lexington Highway
Winterville, Georgia 30605

5. Attainment or Non-attainment Area Location

The facility is located in Clarke County, which is an attainment area for all pollutants.

B. Site Determination

The CII Methane Management III LFGTE Plant, which is a landfill gas to energy (LFGTE) power generation plant, will be located at the existing Athens-Clarke County MSW Landfill, an operating municipal solid waste landfill. The power plant will utilize landfill gas (LFG) generated by the landfill as fuel. The power plant will be owned and managed separately from the landfill. There is no connection between the owners of the generating plant, CII Methane Management III, LLC, and the owners of the landfill, Athens-Clarke County. CII Methane Management III, LLC is a wholly-owned subsidiary of C2i Methane Partners.

Athens-Clarke County MSW Landfill operates under Title V Permit No. 4953-059-0084-V-03-0 and is subject to the provisions of the New Source Performance Standards (NSPS) for landfills found in 40 CFR 60, Subpart WWW - "Standards of Performance for Municipal Solid Waste Landfills."

Since the only fuel available to this power plant will be supplied by the landfill and the two operations are adjacent, contiguous and considered under common control due to interdependence, EPD has determined that the landfill and the power generation plant are one site with regard to Title V and New Source Review.

The findings of the above indicated site determination is presented below:

1. Contiguous/adjacency:

The CII Methane Management III LFGTE Plant will be located on the property of the Athens-Clarke County MSW Landfill in Winterville, Georgia. So the facilities are considered contiguous.

2. Common control:

The ownership and management of the two companies appear to not be related in any way. Application indicates that the LFGTE project will be owned, installed, maintained and operated by CII Methane Management III, LLC (CII MM III). The landfill owns and operates the landfill gas collection system (GCCS) and a flare (which would become back-up to the LFGTE plant operated by CII MMIII). There appears to be no other common financial interest, nor management relationship. Therefore, it might normally be concluded that there is not “common control” and the facilities are separate Title V sites.

However, because the only fuel available to the power station is supplied by the landfill, and it seems clear that LFGTE plant would not be there but for the landfill. For this reason EPD believes that the landfill and the power station are under common control, per EPA guidance described below. Therefore, EPD has determined that the landfill and LFGTE facility constitute a single site for New Source review (NSR) and Title V. [Note: LFGTE is an abbreviation for “Landfill Gas to Energy.”]

The EPA determination from Region 3, a letter dated February 11, 1998 “to Terry Godar, VADEQ that addressed common control for a Virginia landfill, supported the above. In its letter to EPA, Virginia Department of Environmental Quality (VADEQ) noted that ‘The gas collection and the control system ... [landfill gas energy recovery]... will be located on the landfill property *and will be used exclusively to collect emissions from the landfill and to control those emissions through energy recovery.*’ (emphasis added). EPA cited this interdependence between the landfill and the gas collection and control system as an indication that the two facilities were under common control.”

A recent determination by EPA Region 4, by letter dated December 16, 2011, for a similar landfill facility (Houston County LF) and a LFGTE plant [Power Secure, (and FEMC)] in Georgia concluded that Houston County landfill and Power Secure are one stationary source under PSD. Thus, EPD has determined that this landfill and the LFGTE plant are one site with regard to Title V and New Source Review.

Although the LFGTE plant and the landfill are considered a single site for New Source Review (NSR) and Title V, at the request of the applicant, the LFGTE plant will be issued a separate Title V operating permit and the landfill will continue to operate under its existing Title V permit; each facility will have a separate AFS number. The landfill AFS number is 04-13-059-00084; the power plant AFS number is 04-13-059-00102.

C. Existing Permits

Table 1 below lists all current permits (including Part 71 permits), as amended, issued for the Title V site. Based on a comparative review of Item 19 in Section 1.10 of the Title V application

and the "Permit" file(s) on the facility found in the Air Branch office, comments are listed in Table 2 below."

The permits in the table were issued to the Athens-Clarke County MSW Landfill. No permits have yet been issued for the CII Methane Management III LFGTE Plant. Based on a comparative review of Item 19 in Section 1.10 of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office, comments are listed in Table 2 below."

Table 1: List of Current Permits as Amended

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
4953-059-0084-V-03-0	February 15, 2012	✓	

Table 2: Comments on Specific Permits

Permit Number	Comments
4953-059-0084-V-03-0	Title V Renewal permit issued to Athens-Clarke County MSW Landfill

D. Process Description

1. SIC Codes(s)

4911

The SIC Code(s) identified above were assigned by EPD's Air Protection Branch for purposes pursuant to the Georgia Air Quality Act and related administrative purposes only and are not intended to be used for any other purpose. Assignment of SIC Codes by EPD's Air Protection Branch for these purposes does not prohibit the facility from using these or different SIC Codes for other regulatory and non-regulatory purposes.

Should the reference(s) to SIC Code(s) in any narratives or narrative addendum previously issued for the Title V permit for this facility conflict with the revised language herein, the language herein shall control; provided, however, language in previously issued narratives that does not expressly reference SIC Code(s) shall not be affected.

2. Description of Product(s)

Electric power generation, by a landfill gas to energy (LFGTE) plant.

3. Overall Facility Process Description

The landfill gas (LFG) produced from the decomposition of deposited waste is collected using an active gas collection and control system (GCCS). This power generation plant is authorized to operate one generator set consisting of a four-stroke, lean burn, spark ignition (SI) internal combustion engine (ICE) [Caterpillar model G3520C, 1600 kW electrical (kWe) rated at 2,233 brake horsepower (bhp)] combusting LFG as fuel.

The MSW landfill facility is subject to the provisions of 40 CFR 60 Subpart WWW, but currently not required to install a gas collection and control system (GCCS), based on NMOC Tier 2 calculations. A utility flare, owned and operated by Athens-Clarke County MSW Landfill is currently a voluntarily control device for the destruction of methane and non-methane organic compounds (NMOCs). Once the engine is operating, the flare will be used to burn excess LFG and as a back-up control device.

4. Overall Process Flow Diagram (optional)

A simple process flow diagram is included with the Title V application.

E. Regulatory Status

1. PSD/NSR

Clarke County is in an attainment area for all air pollutants, so the applicable New Source Review (NSR) rules would be dictated by the Prevention of Significant Deterioration (PSD) rules.

The Athens-Clarke County MSW Landfill is operating under Permit No. 4953-059-0084-V-03-0 dated February 15, 2012. This landfill is voluntarily operating one open candlestick LFG flare rated at 1,250 scfm, which is not subject to 40 CFR 60 Subpart WWW and NESHAP Subpart AAAAA, to combust LFG. PTE's for each pollutant from the landfill, which have been included in Table 3 below, have been provided by the applicant by their letter dated May 17, 2012.

As indicated in Table 3, this landfill is currently a true minor source for all PSD pollutants (meaning potential emissions are less than 250 tons per year of each pollutant); thus it is not a major source under the PSD regulations in 40 CFR 52.21.

Table 3: Athens-Clarke County MSW Landfill Potential to Emit with Flare

Pollutant	Potential Emission Rate (tons/yr)	PSD Major Source Threshold (tons/yr)	Source Status
PM10	2.79	250	Minor
NO _x	11.17	250	Minor
SO ₂	1.76	250	Minor
CO	60.77 (135.51)*	250	Minor
VOC	0.19	250	Minor
HAP	1.36	250	Minor

*PTE Co emissions estimated by the Division.

The potential emissions from combustion of LFG in the proposed internal combustion engines, as calculated by the Permittee, are shown in Table 4 below and compared to the PSD major source thresholds. This table shows that the installation of LFGTE plant is minor for PSD, in and of itself. [Note: Some of the emission rates of the engines have been calculated to be higher by the Division as shown in the table. However, the PTE of each pollutant remains minor.]

Table 4: CII Methane Management III LFGTE Plant Potential to Emit

Pollutant	Potential Emission Rate (tons/yr)		PSD Major Source Threshold (tons/yr)	Source Status
	Per Facility	Per EPD		
PM ₁₀	3.78	3.81	250	Minor
NO _x	21.56	34.06	250	Minor
SO ₂	1.10	-	250	Minor
CO	84.09	107.5	250	Minor
VOC	0.72	21.51	250	Minor
HAP	0.45	-	250	Minor

The post-modification PTE's of the entire Title V site, as provided in supplemental information dated May 17, 2012 and re-calculated by the Division, are shown in Table 5 below. As indicated in the table, the site will be minor for PSD even after the installation of the proposed generator. [The realistic potential to emit air pollutants from the site will be less than indicated in Table 5, because the LFG to be burned in the generator is the same LFG to be burned in the flare. The LFG cannot be burned by both facilities. The PTE's are added together to determine the site-wide PTE for worst case scenario.]

Table 5: CII Methane Management III LFGTE Plant and MSW Landfill Total Potential to Emit

Pollutant	Current Potential to Emit –Landfill Flare only (tons/yr)	Potential to Emit-Generator (tons/yr)		Post Modification Potential to Emit-Flare and generator (tons/yr)*		Major Source Threshold (tons/yr)	PSD Major Source
		Per Facility	Per EPD	Per Facility	Per EPD		
PM10	2.79	3.78	3.81	6.56.	6.59	250	Minor
NO _x	11.17	21.56	34.06	32.73	45.23	250	Minor
SO ₂	1.76	1.10	-	2.86	-	250	Minor
CO	60.77 (135.51)	84.09	107.7	144.86	243.21	250	Minor
VOC	0.19	0.72	21.51	0.91	21.70	250	Minor
HAP*	1.36	0.45	-	1.81	1.91	25*	Minor

*For Title V

2. Title V Major Source Status by Pollutant

Table 6: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	✓			✓
PM ₁₀	✓			✓
PM _{2.5}	✓			✓
SO ₂	✓			✓
VOC	✓			✓

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
NO _x	✓			✓
CO	✓	✓		
TRS	✓			✓
H ₂ S	✓			✓
Individual HAP	✓			✓
Total HAPs	✓			✓
Total GHGs	✓			✓

3. MACT Standards

According to facility SIP application May 17, 2012 (received May 22, 2012), the landfill's potential to emit total HAPs is 1.36 tpy (refer Table 4 above), which is less than the HAP major source thresholds of 10 tpy for a single HAP or 25 tpy for total HAPs. That makes the existing landfill site a minor source of HAPs with regard to Title V and Title III. The existing landfill is, therefore, an area source of HAPs. Title V Application No. 21093 received April 10, 2012, indicates that the HAP emissions from the LFGTE plant will be 0.45 tpy and total HAP emissions for the entire site will then be 1.81 tpy. The total HAPs emissions for the entire site will still less than the 10 tpy threshold for a single HAP, therefore, the entire site will remain an area source for HAP emissions.

40 CFR Part 63, Subpart ZZZZ

Per Application No. 21093, LFGTE engine being installed by the facility is a 4-stroke, water-cooled gas engine with an electronic control module that handles all engine functions: ignition, governing, air-to-fuel ratio control and engine protection. The engine is coupled with a generator set with 1600 kW electrical power generation capacity.

The LFGTE engine is subject to the NESHAP found in 40 CFR Part 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)." As indicated in the application, the construction/installation date for the landfill gas engine is 2012. Therefore the "commence construction date" for the generator/engine is after June 12, 2006, and according to 40 CFR 63.6590(a)(2)(iii), the engine is defined as new RICE at an area source (since the combined source is minor for HAPs).

According to 40 CFR 63.6590(c) "Stationary RICE subject to Regulation under 40 CFR Part 60," an affected source that is a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines. Therefore, the LFGTE engine is

subject to Subpart ZZZZ, and is required to comply with 40 CFR Part 60 Subpart JJJ requirements. There are no other applicable Subpart ZZZZ requirements.

Thus, compliance with this MACT will be fully met by meeting the requirements of 40 CFR 60 Subpart JJJ–“Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.”

40 CFR Part 63, Subpart AAAA – “National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills”

Subpart AAAA was promulgated on January 16, 2003, and is effective for existing landfills as of January 16, 2004. This rule applies to each landfill that received waste after November 6, 1987 that is a major source of HAPS, is co-located with a major source of HAPS, or is subject to the control requirements of 40 CFR 60 Subpart WWW. Athens-Clarke County MSW Landfill is not a major source of HAPS, not co-located with a major source of HAPS, nor subject to the control requirements of 40 CFR 60 Subpart WWW. The landfill, therefore, is not subject to Subpart AAAA. Please note that a landfill becomes subject to the control requirements of 40 CFR 60 Subpart WWW when the nonmethane organic compounds (NMOC) emissions from the landfill exceed 50 Mg per year.

4. Program Applicability

Indicate if the following programs are applicable to the facility (with a “yes” or “no”).

Program Code	Applicable (y/n)
Program Code 6 - PSD	No
Program Code 8 – Part 61 NESHAP	No
Program Code 9 - NSPS	Yes
Program Code M – Part 63 NESHAP	Yes
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps:

None applicable.

B. Applicable Rules and Regulations

Rules and Regulations Assessment –

The following are the applicable requirements for CII Methane Management III LFGTE Plant:

Georgia Air Quality Control Rules (Chapter 391-3-1)

The Permittee, in “Section C1-Regulatory Applicability” of the Title V Application, and review by the Division, has indicated that the following Georgia Air Quality Rules are applicable:

Georgia Rule 391-3-1-.02(2)(b) “Visible Emissions”

Georgia Rule 391-3-1-.02(2)(g) “Sulfur Dioxide”

Georgia Rule 391-3-1-.02(2)(mmm) “NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity”

Georgia Rule 391-3-1-.03(11)(b)3 Permit by Rule Standard-On-site Power Generation

Also, the facility is subject to the following Georgia Air Quality Rule:

Georgia Rule 391-3-1-.02(3) Sampling

Georgia Rule 391-3-1-.02(6) Source Monitoring

Georgia Rule 391-3-1-.02(2)(b) Visible Emissions

The facility is not allowed to emit gases, from any air contaminant source, the opacity of which is equal to or greater than forty (40) percent. This rule is applicable to the generator as they will not be subject to any other visible emission limitation. No visible emissions are anticipated from the engine with ID. No. ES-1, as it will only combust LFG.

Georgia Rule 391-3-1-.02(2)(g) “Sulfur Dioxide”

For any fuel burning source with maximum heat input below 100 MMBtu/hr, Rule 391-3-1-.02(2)(g) restricts the maximum fuel sulfur content to 2.5 wt.%. This rule is applicable to the engine. However, the engine will easily comply with this rule, since they will only combust LFG that has negligible sulfur content. Note that the applicant has indicated that compliance with this regulation is expected, as the engine has potential to emit 0.24 pounds of sulfur dioxide per hour at a heat input of approximately 18.2 MMBtu/hr.

Georgia Rule 391-3-1-.02(2)(mmm) “NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity”

This rule limits NOx emissions from any stationary gas turbine or any stationary engine used to generate electricity whose name capacity is greater than or equal to 100 kilowatts (KW) and is less than or equal to 25 megawatts (MW), to 80 ppm NOx at 15% O2, dry basis. These requirements of this subsection apply from May 1 through September 30 of each year. The NOx and O2 measurements are required to be done March 1 through May 1 each year. The power output of genset is 1600 KW; therefore, this regulation applies. As indicated by the applicant, the genset is expected to be compliant as the manufacturer guaranteed NOx emissions to be 1.0 gram/bhp-hr, which is equal to 80 ppm @ 15% Oxygen.

Georgia Rule 391-3-1-.03(11)(b)3 Permit by Rule Standard-On-site Power Generation

This rule is applicable to facilities with a potential to emit in excess of the Part 70 major source threshold without existing permit conditions that are federally enforceable or enforceable as a practical matter limiting the source to below Part 70 major source threshold. Since the landfill and the LFGTE plant location is a major source for Title V, and Permit by Rule (PBR) limits are not being taken by any facility, therefore, this rule is not applicable, as indicated by the facility.

Georgia Rule 391-3-1-.02(3) Sampling

Any sampling, computation, and analysis to determine the compliance with any emission limit or standards must be in accordance with the Georgia-DNR, Procedures for Testing and Monitoring Sources of Air Pollutants, or by methods or procedures approved by the Director. The facility must provide safe and adequate sampling ports, and the facility must operate at maximum capacity during test periods.

Georgia Rule 391-3-1-.02(6) Source Monitoring

The facility must comply with monitoring and related requirements specified in the applicable standard, unless the Director specifies additional or more stringent requirements, in which case all requirements must be met. Also, this section gives EPD the authority to require a company to install, maintain, and use emission monitoring devices to sample emissions.

Rule 391-3-1-.02(6) establishes both specific and general source monitoring requirements. Sources subject to any of the Standards of Performance for New Stationary Sources of or pursuant to 42 U.S.C. Section 7411, as amended, or National Emission Standards for Hazardous Air Pollutants of or pursuant to U.S.C. Section 7412, as amended, must meet the monitoring and related requirements specified in the applicable standard. Since the engine is subject to both NSPS 40 CFR 60, Subpart JJJJ and NESHAP 40 CFR 63, Subpart ZZZZ, the generator is exempt from the specific requirements of this NESHAP rule.

However, as the stationary spark ignition internal combustion engine that compose the proposed landfill gas fueled power station is subject to 40 CFR Part 60 Subpart JJJJ – “Standards of Performance for Stationary Spark Ignition Internal Combustion Engines,” the facility is also subject to 40 CFR Part 60 Subpart A, which contains the “General Provisions” of the New Source Performance Standards (NSPS). The engine is also subject to 40 CFR 63 Subpart ZZZZ –

“National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines,” the facility is also subject to 40 CFR Part 63 Subpart A, which contains the “General Provisions” of the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Per Georgia Air Quality Rule 391-3-1-.02(2)(a)7 - “Excess Emissions”, excess emissions from the engines powering the generators could result from engine malfunction. Since the engine is subject to a 40 CFR Part 63, Subpart ZZZZ, the Permittee is required to minimize emissions during startup, shutdown, and malfunction. Therefore, the SI IC engine, (and the LFG treatment system, if any, in the power generation plant, must be addressed in the site’s SSM plan.

Note that, per EPA determinations, if the LFG is to be treated, the engine(s) need not be included in the landfill SSM plan required by 40 CFR Part 63, Subpart AAAA. However, the LFG is neither treated by the landfill nor by the LFGTE plant, therefore, SSM plan for the engine is required to be included by the landfill (currently not required by the landfill) or must be developed and implemented by the LFGTE plant.

Emission and Operating Standards –

This facility is located in Clarke County where NO_x emissions from the engines used for generating electricity shall not exceed 80 ppmvd at 15% oxygen. This NO_x emission limit applies to the engine during the summer Ozone months (i.e. May through September) each year. Also, the facility is to operate its LFGTE engine(s) in accordance with the applicable rules and regulations per NSPS and NESHAP as indicated earlier in this narrative.

C. Compliance Status

A review of signed “Certifications and Signature” page submitted by the applicant indicate that the source is in compliance with all Air Quality Rules as of the application date. Note that the power generation plant is a new facility and thus could not be out of compliance. There is no indication that there are any compliance issues with the Athens-Clarke County MSW Landfill, so EPD concludes that there are no non-compliance issues for the site.

D. Operational Flexibility

None requested by the Permittee. However, it is noted that a portion (545 scfm) of the collected LFG from the landfill will be used in the engine for power generation and the remaining (705 scfm) LFG will be combusted in the flare. When the power generation plant is not in operation, then all of the LFG collected will be combusted in the flare.

E. Permit Conditions

There is no facility wide condition included in Section 2.0 of this initial Title V permit for the LFGTE plant.

III. Regulated Equipment Requirements

A. Brief Process Description (and Modification)

Athens-Clarke County MSW Landfill receives municipal and industrial solid waste. The solid waste is deposited into the landfill disposal cells. Once the waste is covered, the material starts a natural process of decomposing, and producing landfill gas (LFG). The MSW landfill facility is subject to the provisions of 40 CFR 60 Subpart WWW, but currently not required to install a gas collection and control system (GCCS), based on NMOC Tier 2 calculations. The landfill facility had been authorized to install a voluntary landfill gas collection system with a blower and a flare. The purpose of the system installation was to utilize the landfill gas in a landfill-gas-to-energy facility.

CII Methane Management III LFGTE Plant has proposed to install one generator set consisting of a spark ignition (SI) internal combustion engine (ICE), rated at 1600 kW (2,233 HP), combusting only LFG as fuel to power a generator to produce electricity. The LFG will be purchased from the Athens-Clarke County MSW Landfill. The engine/generator pair (a generator set or "Genset") will be located inside of a module which will contain most of the switching equipment associated with that genset.

The LFG produced from the landfill will be disposed off in two ways: (1) providing untreated LFG for power generation (LFG will be treated by the LFGTE Plant before use as fuel in the engine) and (2) routing of excess untreated LFG to the open flare for combustion.

B. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
ES-1	Landfill Gas Engine 1 Caterpillar G3520C Gas Generator Set, rated at 2,233 bhp and 1600 kWe, (DM5859)	40 CFR 60, Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ GA 391-3-1-.02(2)(b) GA 391-3-1-.02(2)(g) GA 391-3-1-.02(2)(mmm)	3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.4.1, 3.4.2, 3.4.3, 4.2.1, 4.2.2, 4.2.3, 5.2.1, 5.2.2, 6.1.7, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5	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.

C. Equipment & Rule Applicability

Emission and Operating Caps –

With the proposed installation and operation of the engine, the potential to emit (PTE) for various air pollutants has been estimated, as indicated below:

Internal Combustion Engines

Process parameters (generator)

The Permittee has used the following process parameters for estimating the potential emissions from the generator:

Electric Output Rating:	1,600 kilowatt
Mechanical Power Output Rating:	2,233 Horsepower
Mechanical Heat input Rate:	18.19 MMBtu/hr
Estimated Maximum generator LFG consumption:	545 scfm
Potential Annual Operating Hours:	8,760 Hours

Nitrogen Oxides (NO_x) emissions

The Permittee uses a manufacturer's emission factor of 1.0 grams/bhp-hr to calculate an emission rate of 4.92 lb/hr per engine or annual emissions of 21.56 tpy:

$$\text{NO}_x = 1.0 \text{ g/bhp-hr} \times \text{lb}/454 \text{ g} \times 2,233 \text{ bhp} = 4.92 \text{ lb/hr, or}$$

$$= 4.92 \text{ lb/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2000 \text{ lb} \approx 21.56 \text{ tons per year for operation of 8760 hrs/yr.}$$

However, Subpart JJJJ only requires that emissions not exceed 2.0 g/bhp-hr. Since that is what they will be tested against and since these rates are sufficient for the facility to avoid PSD, that is what the permit will require and that is how PTE will be calculated:

$$\text{NO}_x \text{ PTE} = 2.0 \text{ g/bhp-hr} \times \text{lb}/454 \text{ g} \times 2,233 \text{ bhp} = 9.84 \text{ lb/hr (or 43.10 tpy.)}$$

Assuming continuous operation, 3672 hrs during ozone season with limitation to emit 1.0 lb/hr and 5088 hrs for rest of the year with Subpart JJJJ, the annual NO_x PTE from the genset will then be:

$$(4.92 \text{ lb/hr} \times 3672 \text{ hrs/yr} \times 1 \text{ ton}/2000 \text{ lb}) + (9.84 \text{ lb/hr} \times 5088 \text{ hrs/yr} \times 1 \text{ ton}/2000 \text{ lb})$$

$$= (9.03 + 25.03) = 34.06 \text{ tons per year.}$$

Carbon Monoxide (CO) emissions

The Permittee uses a manufacturer's emission factor of 3.9 grams/hp-hr to calculate an emission rate of 19.20 lb/hr or annual emissions of 84.09 tpy, as shown below:

$$\text{CO} = 3.9 \text{ g/bhp-hr} \times \text{lb}/454 \text{ g} \times 2,233 \text{ bhp} = 19.2 \text{ lb/hr.}$$

$$= 19.2 \text{ lb/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2000 \text{ lb} = 84.09 \text{ tons per year for operation of 8760 hrs/yr.}$$

However, as with the NO_x calculation above, the PTE must be calculated using the Subpart JJJJ allowable, since that will be a permit requirement:

$$\text{CO PTE} = 5 \text{ g/bhp-hr} \times \text{lb}/454 \text{ g} \times 2,233 \text{ bhp} = 24.59 \text{ lb/hr.}$$

Assuming continuous operation, the annual CO PTE emissions from the genset will then be:

$$24.59 \text{ lb/hr} * 8760 \text{ hrs/yr} * 1 \text{ ton}/2000 \text{ lb} = 107.7 \text{ tons per year.}$$

This emission rate is high in comparison to that predicted using the engine emission factor in the AP-42 for landfills, in Table 2.4-5 "EMISSION RATES FOR SECONDARY COMPOUNDS EXITING CONTROL DEVICES." That CO emissions factor is 470 lb/10⁶ dscf methane. Given that methane is about 1012 Btu/dscf and that IC engine's maximum Btu/hour heat input is 18.2 MMBtu/hour, the AP-42 predicted emission rate is equivalent to 8.45 lb CO per hour, as shown below:

$$470 \text{ lb/MM dscf} * \text{dscf}/1012 \text{ Btu} * 18.19 \text{ MM Btu/hour} = 8.45 \text{ lb CO per hour.}$$

Assuming continuous operation, the annual CO PTE emissions from the genset will then be:

$$8.45 \text{ lb/hr} * 8760 \text{ hrs/yr} * 1 \text{ ton}/2000 \text{ lb} = 37.01 \text{ tons per year.}$$

Volatile Organic Compound (VOC) emissions

The facility based its calculations on AP-42 emission factors (Table 2.4.1 and 2.4.2). The facility first calculated the mass of pollutants in uncombusted LFG and then applied a destruction efficiency to account for "pass-through" emissions of pollutants not combusted during the combustion of LFG as genset fuel. The facility has calculated controlled VOC emission rate of 0.16 lbs/hr or ≈ 0.72 tpy for engine operation @ 8760 hrs/yr.

However, the PTE is calculated using the Subpart JJJJ allowable:

$$\text{VOCs} = 1.0 \text{ g/bhp-hr} * \text{lb}/454 \text{ g} * 2,233 \text{ bhp} = 4.92 \text{ lb/hr VOC per hour}$$

Assuming continuous operation, the annual PTE VOC emissions, from the genset, will then be:

$$4.92 \text{ lb/hr} * 8760 \text{ hrs/yr} * 1 \text{ ton}/2000 \text{ lb} \approx 21.56 \text{ tons per year.}$$

Note that the facility has not directly used AP-42 VOC emission factors to calculate VOC emissions, and used mass emission rates of pollutants. The AP-42 emission factor for lean-burn engines is 0.118 lb/MMBtu and for rich burn is 0.0296 lb/MMBtu. With the maximum 18.19 MMBtu/hour input to the engine, the emission rate for worst case burning (lean) is estimated as below:

$$0.118 \text{ lb/MMBtu} * 18.19 \text{ MMBtu/hour} = 2.15 \text{ lb VOC per hour.}$$

Thus the emission rate estimated by the applicant is much lower than that predicted by AP-42 or Subpart JJJJ. Per AP-42, the total VOC emissions would only be 9.42 tons per year from the genset.

Sulfur Dioxide (SO₂) emissions

Given the very low sulfur content of LFG, emissions of SO₂ are expected to be relatively insignificant. The Permittee has calculated emissions from genset combustion based on the concentration of reduced sulfur compounds present in LFG. Using AP-42 equations, has estimated SO₂ emissions to be 0.25 lb/hr or 1.1 tpy.

Assuming continuous operation, the annual SO₂ PTE emissions from the genset, will then be 1.14 tons per year, as shown below:

$$0.25 \text{ lb/hr} * 8760 \text{ hrs/yr} * 1 \text{ ton}/2000 \text{ lb} = 1.1 \text{ tons per year}$$

Particulate Matter (PM) emissions

The combustion of fuel results in the emissions of PM, PM₁₀, and PM_{2.5}, which are regulated pollutants. According to AP-42 emission factors, particulate matter generated by the combustion of gaseous fuels such as LFG will be less than 2.5 microns in diameter; therefore it is assumed that PM = PM₁₀ = PM_{2.5}. By using AP-42 emission factor of 770 kg/10⁶ dscm, which is approximately equivalent to 48.5 lb/10⁶ dscf and assuming 55% LFG is methane, the applicant has estimated PM emission rate of 0.86 lb/hr or 3.78 tpy, as shown below:

$$\text{PM} = 48.5 \text{ lb}/10^6 \text{ dscf CH}_4 * 545 \text{ dscfm} * 0.55 \text{ dscf CH}_4 / \text{dscf LFG} * 60 \text{ min}/1 \text{ hr} = 0.87 \text{ lb/hr}$$

(indicated as 0.86).

Assuming continuous operation, the annual PM PTE emissions from the genset can then be calculated as shown below:

$$0.87 \text{ lb/hr} * 8760 \text{ hrs/yr} * 1 \text{ ton}/2000 \text{ lb} = 3.81 \text{ tons per year of PM} = \text{PM}_{10} = \text{PM}_{2.5}$$

Hazardous Air Pollutants (HAPs) emissions

The Permittee has estimated HAP emissions, by using Ap-42 emission factors and formaldehyde by using the California Toxic emission factor and has calculated total HAPs emission rate of 0.10 lb/hr from the genset, which amounts to 0.044 tpy (indicated as 0.45) and formaldehyde emission rate of 0.15 lb/hr or 0.65 tpy. The emissions of HAPs from the stacks of similar engines at landfills has previously been determined to be much less than 10 tons per year for any single HAP and 25 tpy for total HAPs. Therefore, we conclude that the site will remain minor for HAPs.

Please note that Permittee calculated total HAPs emissions of 0.45 tpy and formaldehyde emissions of 0.65 tpy as shown in the summary sheet (Table 2). Note that single HAP cannot be more than total HAPs emissions, but this is due to the use of emission factor other than AP-42.

Landfill Flare Emissions

The Permittee has provided Athens Clarke County MSW Landfill flare emissions by their submittal dated May 17, 2012. The emissions of CO from burning of LFG are significant for this permitting. The Permittee has estimated CO emissions of 60.77 tpy. Potential emissions from the

flare have been provided from a similar flare located in other landfill, and using manufacturer's data and AP-42 equations and emission factors (Table 3). Potential emissions for CO from the landfill flare have also been estimated by the Division using the emission factors found in U.S. EPA AP-42 Chapter 2.4 "Municipal Solid Waste Landfills" (the 11/1998 version) and assuming that the flare will be burning up to 1,250 scfm (designed flow rate for the flare as indicated in the application).

$$\begin{aligned} &\text{PTE for CO from the landfill flare (Using U.S. EPA AP-42 Chapter 13.5 Emission Factor)} \\ &= [(1250 \text{ ft}^3 \text{ LFG/min} * 0.55 \text{ Methane / LFG}) * (60 \text{ min/hr}) * (0.001020 \text{ MM Btu/ft}^3 \text{ Methane}) * \\ &\quad \mathbf{(0.37 \text{ lb CO/10}^6 \text{ Btu})} * (8,760 \text{ hrs/yr}) * (1 \text{ ton} / 2,000 \text{ lbs}) \\ &= 68.19 \text{ tpy CO} \end{aligned}$$

According to the current landfill AP-42 for "Municipal Solid Waste Landfills," the CO emission factor (Table 2.4-5) is 750 lbs/10⁶ ft³. Using that factor, CO emissions from the flares are again calculated as below:

$$\begin{aligned} &= [(1250 \text{ ft}^3 \text{ LFG/min} * 0.55 \text{ Methane / LFG}) * (60 \text{ min/hr}) * (8,760 \text{ hrs/yr}) * \mathbf{(750 \text{ lbs CO} / 10^6 \\ &\quad \mathbf{ft}^3 \text{ Methane})} * (1 \text{ ton}/2,000 \text{ lbs}) \\ &= 135.51 \text{ tpy CO} \end{aligned}$$

However, in October 2008, U.S. EPA released the draft new AP-42 Chapter 2.4. According to Table 2.4-4, the flare CO emission factor is now 46 lbs/10⁶ ft³; instead of 750 lbs/10⁶ ft³. The revised PTE for CO from the landfill flare, Using the **Draft** U.S. EPA AP-42 Chapter 2.4 Emission Factor, is:

$$\begin{aligned} &= [(1250 \text{ ft}^3 \text{ LFG/min} * 0.55 \text{ Methane / LFG}) * (60 \text{ min/hr}) * (8,760 \text{ hrs/yr}) * \mathbf{(46 \text{ lbs CO} / 10^6 \\ &\quad \mathbf{ft}^3 \text{ Methane})} * (1 \text{ ton}/2,000 \text{ lbs}) \\ &= 8.31 \text{ tpy CO} \\ &\text{(PTE CO, from landfill flare in worst case scenario is 135.51 tpy)} \end{aligned}$$

Based on the above AP-42 emission factors, and that emission of CO calculated by using manufacturer's specifications, potential to emit CO for worst case scenario is 243.21 tpy (135.51+107.7), which is less than 250 tpy threshold for PSD. Therefore, Athens County Landfill or the LFGTE plant and both combined as one site would be a minor source under PSD even after modification.

The emissions of other air pollutants from burning of LFG are not significant. The facility has estimated other criteria air pollutants, as indicated in their submittal dated May 17, 2012, and are as below:

$$\text{NO}_x = 11.17 \text{ tpy}, \text{SO}_2 = 1.76 \text{ tpy}, \text{VOC} = 0.19 \text{ tpy}, \text{HAPs} = 1.36 \text{ tpy} \text{ and } \text{PM/PM}_{10} = 2.79 \text{ tpy}.$$

Applicable Rules and Regulations -

Federal Rules

40 CFR 60 Subpart WWW

The landfill is subject to the requirements of 40 CFR 60 Subpart WWW, and is not required to install and operate a GCCS subject to Subpart WWW, including a control device. According to 40 CFR 60 Subpart WWW 60.752(b)(2)(iii), landfills may route all the collected gas to a control system that complies with the requirements of this section, which is either an open flare or enclosed flare or a boiler or process heater, or route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. The landfill is not treating the gas before it is supplied to the LFGTE plant, the power generation plant will be responsible to treat the gas before use and must comply with 40 CFR 60.752(b)(2)(iii)(C) as and when needed. The LFGTE plant has a proposal to treat the gas before firing it in their engine. As indicated by the facility there will not be any exhaust from the treatment system.

In the proposed amendment to Subpart WWW, EPA clarified its position on gas treatment: “Once landfill gas is treated, facilities that buy or use the gas have no further obligation related to the landfill NSPS.” Also, there are EPA determinations regarding LFG treatment. These make it clear that, once gas is treated in accordance with the guidance, it is no longer subject to the monitoring and record keeping requirements found at 40 CFR 60.756(b) and 758(b) and (c). In view of above, the engines will not be subject to the above indicated requirements of Subpart WWW, but the facility is required to comply with the NSPS provisions for the LFG treatment system as and when needed.

Therefore, currently the engine will not be subject to the requirement of 98% destruction efficiency per Subpart WWW, since the engines will not be considered control devices for the LFG. However, the open flare used for combustion of excess LFG that is not being supplied to the LFGTE Plant will continue to be subject to the applicable requirements of Subpart WWW for the gas collection and control system.

40 CFR Part 63, Subpart AAAA

As indicated earlier, 40 CFR Part 63, Subpart AAAA, “National Emission Standards for Municipal Solid Waste Landfills (NESHAP)” applies to each landfill that received waste after November 6, 1987 that is a major source, is co-located with a major source, or is subject to the control requirements of 40 CFR 60 Subpart WWW. Athens-Clarke County MSW Landfill does not meet these criteria; not co-located with a major source and also its NMOC emissions are not over 50 Mg per year, so it is not subject to the control requirements per WWW. Thus, the landfill is also not subject to Subpart AAAA, and hence the LFGTE plant.

40 CFR 60 Subpart JJJJ

40 CFR 60 Subpart JJJJ, “Standards of Performance for Stationary Spark Ignition Internal Combustion Engines” was promulgated on January 18, 2008, and is applicable to the engines because they are all spark ignition (SI) internal combustion engines (ICE). According to 40 CFR

60.4230(a)(4)(i), owners and operators of stationary SI ICE (manufactured on or after July 1, 2007) with a maximum engine power greater than or equal to 500 HP, that commence construction after June 12, 2006, are subject to NSPS Subpart JJJJ. Since the IC engines at this facility will be manufactured after July 1, 2007, 40 CFR 60 Subpart JJJJ is applicable to them. Therefore, the engine with ID. No. ES-1 is subject to the following emission standards for NO_x, CO, and VOC [40 CFR 60.4233(e)].

Table 7: Applicable Emission Standards Included in Table 1 to 40 CFR 60 Subpart JJJJ.

Engine type and fuel	Maximum engine power	Manufacture date	Emission Standards*					
			g/HP-hr			ppmvd at 15% O ₂		
			NO _x	CO	VOC**	NO _x	CO	VOC**
Landfill/Digester Gas	HP ≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80

* Owners of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O₂.

** For the purpose of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

Note that the NO_x emission standard is more stringent for engines with a manufacture date of 7/1/2010 or later. Since the permit application indicates that the engines will emit 1.0 g/HP-hr of NO_x, per manufacturers guarantee, the facility will be in compliance with the most stringent NSPS standard.

In order to demonstrate compliance with these emission standards, 40 CFR 60.4243(b) requires that the facility either purchase an engine certified according to specified procedure or purchasing a non-certified engine and demonstrate compliance according to all applicable requirements of Subpart JJJJ [emission standards specified in §60.4233 (d) or (e), requirements of §60.4244 and §60.4243(b)(2)(ii)].

PSD/NSR Applicability

This facility is currently minor for PSD/NSR, and the emissions increase for the PSD/NSR pollutants are each less than the major source thresholds. This project is, therefore, minor for PSD/NSR.

Acid Rain Rules

The Acid Rain Program was established by Title IV of the Clean Air Act Amendments 1990 to reduce acid rain in the U.S and Canada. For the Acid Rain Program to be applicable to a power generation unit, the following three conditions must be met.

1. The unit must be a combustion device.

2. The unit must be fossil fuel fired.

3. The unit must supply electricity for sale or serve an electricity-generating device that supplies electricity for sale.

The proposed power station meets the definition of a combustion device and it plans to supply electricity for sale. However, landfill gas, which will constitute the only fuel for the proposed power station, does not meet the definition of fossil fuel. Therefore, the Acid Rain Program will not apply to the proposed power station.

Greenhouse Gas (GHG) Regulations (40 CFR Part 98 and 40 CFR Parts 51, 52, 70, et al)

Currently under the GHG Tailoring Rules, new facilities with GHG emissions of at least 100,000 tons per year (tpy) carbon dioxide equivalent (CO₂e) and existing facilities with at least 100,000 tpy CO₂e making changes that would increase GHG emissions by at least 75,000 tpy CO₂e are required to obtain PSD permits. Facilities that must obtain a PSD permit anyway, to cover other regulated pollutants, must also address GHG emissions increases of 75,000 tpy CO₂e or more. New and existing sources with GHG emissions above 100,000 tpy CO₂e must also obtain operating permits

Existing Title V sources were not required to start reporting their GHG potential to emit before July 1, 2011. Therefore, Title V applications submitted before this date did not have to include their GHG potential to emit. Since this permit renewal application was submitted on April 10, 2012 which is after the above-indicated date, the facility was required to submit Part 70 Permit application –Greenhouse Gas Supplement application which includes their GHG emissions potential. However, the facility did not do so.

However, EPA's deferral for CO₂ emissions from biogenic and other biogenic sources (specific example given below) published in the Federal Register/Vol. 76, No. 139/Wednesday, July 20, 2011/Rules and Regulations, defers for a period of 3 years the application of the PSD and Title V permitting.

“Examples of “biogenic CO₂ emissions” include, but are not limited to:

- CO₂ generated from the biological decomposition of waste in landfills, wastewater treatment or manure management processes;
- CO₂ from the combustion of biogas collected from biological decomposition of waste in landfills, wastewater treatment or manure management processes;”

However, the biomass deferral exempts CO₂ (not methane) from landfills and from flares/engines burning LFG. Therefore, the facility is required to submit the GHG TV application Supplement with their Title V application.

It is indicated that adding a LFGTE engine is like adding a "new unit" under PSD; and adding such LFGTE engine does not affect GHG generation at a landfill itself (although an engine will result in controlled GHG emissions being less than uncontrolled GHG emissions).

The PSD "test" in this case is: if the landfill has a GHG PTE over 100,000 tpy (excluding deferred CO₂), then one must ensure that the LFGTE engine project is less than 75,000 tpy (excluding deferred CO₂). In view of this facility was requested to submit GHG TV application Supplement, which should address the entire Title V site (landfill and engine) as a whole (so the total would include non-fugitive methane from the landfill). Also, it was indicated that for GHG calculation purposes, please note that methane is not deferred from the CO₂e term in the 'biomass deferral'. If the flares are not required by NSPS or permit yet, the GHG estimation must include the highest uncontrolled methane value. Division assumed that potential GHG from the Athens landfill could be over 100,000 tpy on uncontrolled methane alone, but the addition of an engine may not increase GHG much at all.

Note that the GHG supplement, Part 70 permit application submitted by the facility's consultant, which was received on May 22, 2012, indicated that facility wide GHG potential emissions are less than 100, 000 tpy. The emissions are also less than 75,000 tpy for modification requirements.

Toxic Air Pollutant (TAP) Emissions

The impacts of TAP emissions, which include Hazardous Air Pollutants (HAPs), must be evaluated through dispersion modeling, per the Georgia Air Toxics Guideline. A toxic air pollutant is defined as any substance, which may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. The impact is to be evaluated by comparing the modeled results to a threshold limit value for a given air toxic, taking into consideration a safety factor.

A review of the AP-42 shows that based on emission rates of various organic pollutants and the threshold limit values for said pollutants, formaldehyde is the "worst case" pollutant in regard to toxic modeling. A modeling report submitted with the application (received on April 10, 2012) was prepared by Richardson Smith Gardner and Associates CII Methane Management's consultant, using the EPA's SCREEN 3 computer dispersion model, to predict the maximum 15-minute average ground level concentrations (referred to as MGLCs) and annual concentration for formaldehyde. This report demonstrated that the maximum impacts would be well below the acceptable ambient concentrations (AACs) for this pollutant.

EPD is using IRIS value of 0.77 $\mu\text{g}/\text{m}^3$ as the acceptable ambient concentrations (AACs) for formaldehyde in place of 0.8 $\mu\text{g}/\text{m}^3$ as indicated in the application. However, this will no longer make any difference since the modeled concentration of 0.386 $\mu\text{g}/\text{m}^3$ is much below the annual AACs concentration. Also, the modeled 15-minute average ground level concentration for formaldehyde is 6.36 $\mu\text{g}/\text{m}^3$ against the 15-minute average ACC of 246 $\mu\text{g}/\text{m}^3$.

Georgia Rules for Air Quality Control

Rule (b) - Visible Emissions

Georgia Rules for Air Quality Control Chapter 391-3-1-.02(2)(b), AKA Rule(b), requires that visible emissions from an air contaminant source be limited to a maximum opacity of 40 percent. This standard is only applicable to sources subject to another emission limitation under section 391-3-1-.02. The proposed landfill gas to energy plant will be subject to such an emission

limitation. Therefore, the visible emission standard under this rule will be applicable to the proposed power station. [Note: Visible emissions from the combustion of LFG in an engine will typically have 0 percent opacity.]

Rule (g) - Sulfur Dioxide

Rule 391-3-1-.02(2)(g), AKA Rule(g), specifies the maximum sulfur content in fuels used for combustion. Paragraph 2 of this rule limits the maximum sulfur content to 2.5 percent (by weight) in all fuels fired in a combustion source below 100 million Btu per hour heat input rate. The heat input for each engine is 18.19 million Btu per hour. As such, the landfill gas may not contain more than 2.5 percent sulfur by weight. [Note: That is far more sulfur than LFG could possibly contain.]

Rule (mmm)- “NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity”

Refer to Section II B of this narrative.

Rule .03(11)(b)3-On site Power generation

Refer to Section II B of this narrative.

Emission and Operating Standards:

Compliance Requirements for Owners and Operators

Per 40 CFR 60.4243(b), engines of the proposed size, firing LFG as fuel, and with the specified manufacturing dates must comply with the emission standards in Table 1 of Subpart ZZZZ, as specified in §60.4233(e). Since the engines will not be manufacturer certified, and are to be larger than 500 HP, CII Methane Management III LFGTE Plant must show compliance with these limits per §60.4243(b)(2)(ii), which is quoted below:

“If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.”

The requirements specified in 40 CFR 60.4243(b) is included in Condition 6.2.15 of this Title V permit.

D. Compliance Status

A review of signed “Certifications and Signature” page submitted indicate that the source is in compliance with all Air Quality Rules as of the application date. Note that the power generation plant is new and thus there are no non-compliance issues so far.

E. Operational Flexibility

None requested.

F. Permit Conditions

The permit conditions that are incorporated into Section 3.3 of the initial Title V permit have been developed out of the requirements of the provisions found in the NSPS and NESHAP for internal combustion engines and Georgia Air Quality Rules.

Condition No. 3.3.1 requires the Permittee to comply with Subpart JJJJ of 40 CFR 60.

Condition No. 3.3.2 requires the Permittee to comply with all the applicable general provisions of Subpart A, as specified in 40 CFR 60 Subpart JJJJ.

Condition No. 3.3.3 establishes the applicability of 40 CFR Part 63, Subpart A-general provisions and Subpart ZZZZ - "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" to the LFGTE plant.

Condition No. 3.3.4 requires that the SI IC Engines comply with the emission limits for NO_x, CO and VOC that are set by rule 40 CFR 60 Subpart JJJJ. Note that, per Table 1 of this rule, "For purposes of this Subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included."

Condition No. 3.3.5 requires the Permittee to operate the SI IC Engines in a manner consistent with good air pollution control practice for minimizing emissions, per 60.4244(b)(2)(ii).

Condition 3.4.1 establishes the Rule (b) opacity limit of 40 percent applicable to SI ICE.

Condition 3.4.2 establishes the Rule (g) sulfur in fuel limit of 2.5 percent by weight as applicable to the engines.

Condition 3.4.3 establishes the Rule (mmm) emission standard applicability to stationary engines located in the Atlanta 45 county area, during the ozone season from May 1 to September 30 each year.

IV. Testing Requirements (with Associated Record Keeping and Reporting)**A. General Testing Requirements**

The standard general requirements are included in the permit.

Any modifications to these standard requirements should be explained below in item 1.

1. Exceptions to General Testing Requirements

None applicable.

B. Specific Testing Requirements

Since CII Methane Management III LFGTE Plant is not yet subject to Subpart WWW, as the landfill is not yet subject to the requirements of the NSPS for the control of LFG, as indicated above, and will not be subject to any Subpart WWW performance requirements for NMOC destruction efficiency, or monitoring requirements, for the engines with ID. Nos. ES-1. However, the Permittee is required to comply with the applicable provisions of 40 CFR 60 subpart JJJJ; required to conduct performance tests per Subpart JJJJ.

Condition 4.2.1 requires the Permittee to conduct performance tests on each engine to demonstrate compliance with NO_x, CO and VOC emissions the emission limits in 40 CFR 60 Subpart JJJJ.

Condition 4.2.2 establishes the requirements for subsequent testing of NO_x, CO and VOC emissions required per NSPS, 40 CFR 60 Subpart JJJJ.

Condition 4.2.3 specifies the procedure to be followed for conducting performance testing and determining compliance, per section 60.4244 of 40 CFR 60 Subpart JJJJ.

V. Monitoring Requirements (with Associated Record Keeping and Reporting)

A. General Monitoring Requirements

The engineer needs to state that the standard general requirements are included in the permit. No modifications to these standard requirements have been made.

1. Exceptions to General Monitoring Requirements: None.

B. Specific Monitoring Requirements

Athens-Clarke County MSW Landfill is subject to 40 CFR 60 Subpart WWW, but the LFG gas collection and control equipment and flare is not yet regulated by this subpart. Also, LFG is not being treated before use in the LFGTE plant. Therefore, LFGTE plant is not subject to Subpart WWW. However, as and when the landfill's GCCS including flare is regulated, landfill and the LFGTE plant will be required to comply with all the provisions of Subpart WWW for the collection, treatment and control of LFG.

Under Georgia Air Quality Control Rule 391-3-1-.02(6)(b) - "General Monitoring and Reporting Requirements," any person engaged in operations, which causes emissions to be released into the atmosphere, which may result in air pollution, may be required to install, maintain, and use emission-monitoring devices. To assure that the engine is operated properly and in accordance with the manufacturer's specifications and written instructions, certain monitoring conditions have been included in this section as below:

Although the purpose of the installation of engine/generator is to produce power from LFG, the landfill gas engine also destroys NMOC in the LFG. To provide adequate monitoring to assure destruction of NMOCs in LFG (although this is not required by Subpart WWW) by the IC engine and also to make sure that the emissions of criteria air pollutants are minimized, engine must be operated properly. Note that, if LFG is not treated before combustion in the engine, the engine will be subject to the monitoring requirements of Subpart WWW upon requirement to control LFG.

Condition 5.2.1 requires installing and operating monitoring devices on engine with ID No. ES-1.

Condition 5.2.2 requires that NO_x and O_2 be measured at some time during March 1 through May 1 each year to comply with GA Rule (mmm).

As indicated above, the engine will be subject to Georgia Rule (b) for "Visible Emissions" by Condition 3.4.1, although the opacity of emissions from the landfill gas engine is expected to be near zero percent. As also indicated above, the genset will be subject to Georgia Rule (g) for "Sulfur Dioxide" by Condition 3.4.2, although the sulfur content of landfill gas is much lower than 2.5%. Because the likelihood of violating either Rule (g) or Rule (b) is minimal, no monitoring is required by the permit.

VI. Other Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Division now allows all Title V major sources to submit their semiannual reports within 60 days, instead of 30 days, after the end of each semiannual period. Therefore, Conditions 6.1.3, 6.1.4, and 8.14.1 are the modified conditions in this Title V permit.

The engineer needs to state that the standard general requirements are included in the permit. Any modifications to these standard requirements should be explained below in item 1.

1. Exceptions to General Record Keeping and Reporting Requirements

Template Conditions 6.1.3 and 6.1.4 were updated in September 2011 to allow ~60 days to submit periodic reports. Alternative reporting deadlines are allowed per 40 CFR 70.6, 40 CFR 60.19(f) and 40 CFR 63.10(a).

B. Specific Record Keeping and Reporting Requirements

Condition No. 6.2.1 contains requirements to submit startup notifications for the landfill gas engine per Georgia Air Quality Rules and 40 CFR 60.7 and provide the written instructions provided by the engine manufacturer for engine operation.

Condition 6.2.2 requires the Permittee to comply with the notification, reporting and recordkeeping requirements, per §60.4245 for the engine. This information provides guidance to the Permittee regarding what needs to be done when operating a certified or a non-certified engine.

Condition No. 6.2.3 contains the requirement for the Permittee to submit a semiannual report regarding times when LFG is not being used in the LFGTE engine.

Condition No. 6.2.4 contains a requirement to submit a written certification to the Division and EPA that the company will manage and combust the LFG in accordance with the requirements of the 40 CFR 60 Subpart WWW, as and when needed. This is included to make sure that the company understands that it is taking on this Subpart WWW responsibility on behalf the landfill.

Note that Subpart WWW does not require this, but as the flexibility has been provided to receive untreated LFG from the landfill, the company is responsible for providing treatment. Therefore, this condition is included under Georgia rules so that LFGTE plant understands that they have taken on this responsibility under Subpart WWW.

Condition No. 6.2.5 provides provisions for the company to rescind the above-required certification if and when they stop accepting landfill gas from the landfill.

VII. Specific Requirements

A. Operational Flexibility

None applicable.

B. Alternative Requirements

None applicable.

C. Insignificant Activities

Refer to <http://airpermit.dnr.state.ga.us/GATV/default.asp> for the Online Title V Application.

Refer to the following forms in the Title V permit application:

- Form D.1 (Insignificant Activities Checklist)
- Form D.2 (Generic Emissions Groups)
- Form D.3 (Generic Fuel Burning Equipment)
- Form D.6 (Insignificant Activities Based on Emission Levels of the Title V permit application)

D. Temporary Sources

None applicable.

E. Short-Term Activities

None applicable.

F. Compliance Schedule/Progress Reports

None applicable.

G. Emissions Trading

None applicable.

H. Acid Rain Requirements

None applicable.

I. Prevention of Accidental Releases

None applicable.

J. Stratospheric Ozone Protection Requirements

The standard permit condition pursuant to 40 CFR 82 Subpart F has been included in the Title V permit. The facility does not operate equipment that is subject to Title VI of the 1990 Clean Air Act Amendments.

As per Title V permit application, this facility does have air conditioners or refrigeration equipment that uses CFC's, HFC's or other stratospheric ozone depleting substances listed in 40 CFR Part 82, Subpart A. Appendices A and B.

K. Pollution Prevention

None applicable.

L. Specific Conditions

None applicable.

VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Template Condition 8.14.1 was updated in September 2011 to change the default submittal deadline for Annual Compliance Certifications to February 28.