Facility Name: **CG PS Houston, LLC**
City: Kathleen
County: Houston
AIRS #: 04-13-15700053

Application #: TV-27989, TV-501957
Date Application Received: June 10, 2021, June 8, 2021
Permit No: 4911-153-0057-V-04-0

Program	Review Engineers	Review Managers
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Introduction

This narrative is being provided to assist the reader in understanding the content of referenced operating permit. Complex issues and unusual items are explained here in simpler terms and/or greater detail than is sometimes possible in the actual permit. The 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. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The 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

A. Facility Identification

1. Facility Name:
CG PS Houston, LLC

2. Parent/Holding Company Name
CG PS Houston, LLC (owned by Clear Gen, LLC)

A green power agreement is held with Flint Electric Membership Corporation (FEMC) who provides the landfill gas for the generation services. FEMC has contracted with Clear Gen, LLC to receive the landfill gas and treat it sufficiently to protect the engines and comply with 40 CFR Part 60 Subpart WWW. Clear Gen, LLC, through its contract with FEMC, is responsible for all capital improvements on the property that were needed to construct the generation plant; the power produced goes directly to the FEMC transmission system. There is no contract directly between Houston County and Clear Gen, LLC.

3. Previous and/or Other Name(s)

This is an existing facility and it's previous name was Houston County LFGTE Generation Plant.

4. Facility Location

2080 Georgia Highway 247 South
Kathleen, Georgia 31047

5. Attainment, Non-attainment Area Location, or Contributing Area

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

B. Site Determination

The CG PS Houston, LLC Generation Plant, which is a landfill gas to energy (LFGTE) power generation plant, is located at the existing Houston County MSW Landfill, an operating MSW landfill. The power plant utilizes landfill gas (LFG) generated by the landfill as fuel.

The Houston County MSW Landfill operates under Title V Permit No. 4953-153-0048-V-04-0 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." The landfill has a contractual arrangement for the sale of its LFG to Flint EMC (FEMC). FEMC has a Green Power Services Agreement with Clear Gen, LLC. to supply the LFG for the Clear Gen, LLC generators. Clear Gen, LLC. owns, operates, and maintains the power generation plant.

Since the only fuel available to this power plant is supplied by the landfill and the two operations are 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.

Note: Although EPD considers the landfill and power generation plant to be one site for Title V and New Source Review permitting, the applicant disagreed and has requested a determination from EPA Region 4. This request was sent to EPD, which forwarded it to EPA Region 4 on February 8, 2010. USEPA responded in a letter dated December 16, 2011, which stated the following; the EPA agreed with EPD that it is appropriate to consider the facilities at the site to be under common control and therefore a single stationary source under the PSD Program.

Since Region 4 has made this determination, this permit is being issued as the facilities are one site.

At the request of the applicant, the landfill will continue to operate under its existing Title V permit, and the power plant will continue to operate under its existing Title V permit; each facility has a separate AFS number. The landfill AFS number is 04-13-153-00048; the power plant AFS number is 04-13-153-00057.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

Permit Number and/or Off-Permit Change	Date of Issuance/ Effectiveness	Purpose of Issuance
4911-153-0057-V-03-0	December 16, 2016	Title V Renewal

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)

   Electricity generation, by a landfill gas to energy (LFGTE) facility.

3. Overall Facility Process Description

   CG PS Houston, LLC Generation Plant, is a landfill gas to energy power generation plant that is located at the Houston County Landfill, an operating landfill which is subject to 40 CFR 60, Subpart WWW. 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 operates up to two generator sets, each consisting of a spark ignition (SI) internal combustion engine (ICE) [model DM 5860], rated at 2,233 brake horsepower (bhp), and a generator [Caterpillar model G3520C, 1600 kW electrical (kWe)], combusting LFG as the only fuel. A utility flare, owned and operated by Houston County MSW Landfill, is the backup control device for the destruction of methane and non-methane organic compounds (NMOCs), as required by NSPS, Subpart WWW.

   The CG PS Houston, LLC Generation Plant permit had previously required parameter monitoring (i.e., manifold temperature, manifold pressure, ignition timing, and engine load) on each engine. Since the issuance of the facility's original permit, the Division has determined that the monitoring of these parameters is only needed for engines that are subject to NOx limits due to PSD, nonattainment NSR, or RACT. The only NOx limit for the engines at CG PS Houston, LLC Generation Plant are due to 40 CFR 60 Subpart JJJJ, so the parameter monitoring was not needed.

4. Overall Process Flow Diagram

   The facility provided a process flow diagram in their Title V permit application.

E. Regulatory Status

1. PSD/NSR

   Houston County is in an attainment area for all air pollutants. Neither landfills nor LFGTE plants are included as one of the 28 listed source categories that have a 100-tpy PSD major source threshold, per 52.21.

Table 2 is the emission information from the Title V renewal application (TV-40464) for the Houston County MSW landfill. This landfill is currently a major source of NOx emissions.

Table 2: Houston County MSW Landfill Potential to Emit with Flare (per Applicant)

Pollutant	Potential Emission Rate (tons/yr)	PSD Major Source Threshold (tons/yr)	Source Status
PM_{10}	190	250	Minor
NO_x	352	250	Major
SO_2	100	250	Minor
CO	206.96	250	Minor
VOC	6.5	250	Minor
HAP	4.2	250	Minor

The potential emissions from combustion of LFG in the internal combustion engines at CG PS Houston, LLC Generation Plant that is collocated on the same Title V site as the landfill, as calculated by the Permittee, are shown in Table 3 below and compared to the PSD major source thresholds. This table shows that the CG PS Houston, LLC Generation 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 due to 40 CFR Part 60 Subpart JJJJ being the limiting emission factor. However, the PTE of each pollutant remains minor.]

Table 3: CG PS Houston, LLC Generation Plant Potential to Emit

Pollutant	Potential Emission Rate (tons/yr)		PSD Major Source Threshold (tons/yr)	Source Status
	Per Facility	Per EPD		
PM_{10}	13.1	8.15	250	Minor
NO_x	48.69	129.3	250	Minor
SO_2	1.14	-	250	Minor
CO	178.38	215.4	250	Minor
VOC	3.71	43.0	250	Minor
HAP	1.0	-	250	Minor

The post-modification PTE's of the entire Title V site, as provided in Application Nos. TV-40464 and TV-501957 and re-calculated by the Division, are shown in Table 4 below. As indicated in the table, the site became major for PSD for NOx and CO after installation of the generators, because the potential emissions of combined (for the landfill and the power plant) NOx and CO will be over the major source threshold for the two facilities. [However, the realistic potential to emit air pollutants from the site will be less than indicated in Table 4, because the LFG to be burned in the generators is the same LFG to be burned in the flares. The same LFG cannot be burned by the landfill flare and the power plant at the same time. The PTE's are added together to determine the site-wide PTE so that neither permit need contain emission limits or operating limits.]

Table 4: CG PS Houston, LLC Generation Plant and Landfill Total Potential to Emit

Pollutant	Current Potential to Emit –Landfill Flare only (tons/yr)	Potential to Emit-Generators (tons/yr)		Post Modification Potential to Emit-Flare and generators (tons/yr)*		Major Source Threshold (tons/yr)	PSD Major Source
		Per Facility	Per EPD	Per Facility	Per EPD		
PM_{10}	190	13.1	8.15	203.1	198.15	250	Minor
NO_x	352	48.69	129.3	400.7	481.3	250	Major
SO_2	100	1.14	-	101.14	-	250	Minor
CO	206.96	178.38	215.4	385.34	422.36	250	Major
VOC	6.5	3.71	43.0	10.21	49.5	250	Minor
HAP*	4.2	1.0	-	5.2	-	25*	Minor

*For Title V

Internal Combustion Engines

With the installation and operation of the power generators, the potential to emit (PTE) for various air pollutants was estimated. There was an increase in the PTE of these pollutants above the potential to emit by the landfill, as indicated in Section E-1 of this narrative.

The Permittee has used the following process parameters for estimating the potential emissions from each of the two generators:

Electric Output Rating:	1,600 kilowatt
Mechanical Power Output Rating:	2,233 Horsepower
Mechanical Heat input Rate:	16.02 MMBtu/hr
Estimated Maximum generator LFG consumption:	518.6 scfm
Potential Annual Operating Hours:	8,760 Hours

Nitrogen Oxides (NOx) emissions

40 CFR 60 Subpart JJJJ requires that emissions of NOx to not exceed 3.0 g/bhp-hr. Since that is what they were tested against and since these rates are sufficient for the facility to avoid PSD, that is what the permit required and that is how PTE is calculated:

NO_x PTE = 3.0 g/bhp-hr x lb/454 x 2,233 bhp = 14.76 lb/hr.

Assuming continuous operation, the annual NO_x PTE from two engines combined will then be:

14.76 lb/hr * 8760 hrs/yr * 1 ton/2000 lb*2 engines = 129.3 tons per year.

Carbon Monoxide (CO) emissions

As with the NOx calculation above, the PTE must be calculated using the Subpart JJJJ allowable, since that is a permit requirement:

CO PTE = 5 g/bhp-hr x lb/ 454 g x 2,233 bhp = 24.59 lb/hr.

Assuming continuous operation, the annual CO emissions from two engines combined, will then be:

24.59 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 2 engines = 215.4 tons per year.

Volatile Organic Compound (VOC) emissions

The PTE is calculated using the Subpart JJJJ allowable:

VOCs = 1.0 g/bhp-hr * lb/ 454 g x 2,233 bhp = 4.91 lb/hr VOC per hour

Assuming continuous operation, the annual PTE VOC emissions, from two engines combined, will then be:

4.33 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 2 engines = 43 tons per year.

Sulfur Dioxide (SO_2) emissions

Given the very low sulfur content of LFG, emissions of SO_2 are expected to be relatively insignificant. The Permittee has used an emissions factor 25.6 ppmv sulfur, based on a 11/18/2009 analytical report by Analytical Solutions Inc., and has estimated SO_2 emissions to be 0.13 lb/hr per engine.

Assuming continuous operation, the annual SO_2 emissions, from two engines combined, will then be 1.14 tons per year, as shown below:

0.13 lb/hr * 8760 hrs/yr * 1 ton/2000 lb * 2 engines tons per year = 1.14 tons per year

Particulate Matter (PM) emissions

The currently approved AP-42 factor is 770 kg/10^6 dscm, which is approximately equivalent to 48.5 lb/10^6 dscf CH_4. Therefore, the annual emission rate that is the result of the current AP-42 can be calculated by multiplying the ratio of the existing/proposed AP-42 by the calculated annual rate, as shown below:

8.15 tons per year x (48.5/15) = 25.35 PM = PM_{10} = $PM_{2.5}$

Hazardous Air Pollutants (HAPs) emissions

The Permittee has estimated HAP emissions, by using draft AP-42 of Oct 2008 (Table 2.4-1) emission factors and has calculated total HAPs emission rate of 0.228 lb/hr from both engines, which amounts to 1.0 tpy. In general, EPD cannot allow the use of proposed emission factors, unless it has been determined that such factors are better than the existing factors. For HAPs, the emission rates in the draft document seem more conservative than the currently approved AP-42 factors. In any case, 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. The site is minor for HAPs

2. Title V Major Source Status by Pollutant

Table 2: 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	Yes	✓		
PM_{10}	Yes	✓		
$PM_{2.5}$	Yes	✓		
SO_2	Yes	✓		
VOC	Yes			✓
NO_x	Yes	✓		
CO	Yes	✓		
TRS	Yes			✓
H_2S	Yes			✓
Individual HAP	Yes			✓
Total HAPs	Yes			✓

3. MACT Standards

According to landfill SIP application No. 40464, the landfill's potential to emit HAPs is 4.2 tpy (refer to Table 2 above), which is less than 25 tpy. That makes the existing landfill site a minor source of HAPs with regard to Title V and Title III. Title V Application No. TV-501597, received June 8, 2021, indicated that the HAP emissions from the power generation plant is 1.0 tpy and total HAP emissions for the entire site is then to be 5.2 tpy. Therefore, the site has less than 10 tpy major source threshold for each HAP, and 25 tpy for total HAP, and the entire site is a minor source for HAP emissions.

40 CFR Part 63, Subpart AAAA

40 CFR Part 63, Subpart AAAA, "National Emission Standards for Municipal Solid Waste Landfills (NESHAP)" was promulgated on January 16, 2003, and was effective for existing landfills on January 16, 2004. This rule 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. Houston County MSW Landfill does meet these criteria and so is subject to the control requirements, so it is subject to Subpart AAAA.

Few requirements were added by this Part 63 NESHAP, because EPA determined that the NSPS had already required MACT. Since the power generation facility is responsible for the treatment of LFG before use in engines and Subpart WWW is applicable to such treatment plants, this facility is responsible for compliance with these provisions.

40 CFR Part 63, Subpart AAAA will not require the facility maintain a SSM plan, and the records required as of September 27, 2021. Therefore, references to the SSM plan was removed from the appropriate conditions in the permit.

40 CFR Part 63, Subpart ZZZZ

Per Application Nos. 19426 and 19478, each engine 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 two engines are 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 engines is May 2010. Therefore the "commence construction date" for each generator is after June 12, 2006. Therefore, according to 40 CFR 63.6590(a)(2)(iii), they are all 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, both the engines are subject to Subpart ZZZZ, and are required to comply with 40 CFR Part 60 Subpart JJJJ 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 JJJJ – "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines."

4. Program Applicability (AIRS Program Codes)

Program Code	Applicable (y/n)
Program Code 6 - PSD	No
Program Code 8 – Part 61 NESHAP	Yes
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

40 CFR 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills

This rule is applicable to each municipal solid waste landfill that has a design capacity greater than 2.5 million megagrams (Mg) or 2.5 million cubic meters (m^3), if the landfill commenced construction, reconstruction or modification on or after May 30, 1991. Houston County MSW Landfill received a Solid Waste Amendment on December 16, 2015, that increased the design capacity to 46.8 million cubic yards (35.8 million cubic meters). This landfill, therefore, is subject to NSPS, 40 CFR 60 Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills. Because the NMOC emissions from Houston County MSW Landfill exceeded 50 megagrams per year, the landfill has installed a gas collection and control system.

40 CFR 61 Subpart M – NESHAP for Asbestos

Houston County MSW Landfill accepts asbestos-containing waste and is, therefore, subject to the asbestos NESHAP in 40 CFR 61, Subpart M. As long as this MSW Landfill remains active, it is required to comply with the provisions of 40 CFR 61.154 – "Standard for Active Waste Disposal Sites", including all reporting and record keeping requirements. Upon closure, the facility will be required to comply with 40 CFR 61.151 – "Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations".

40 CFR Part 63 Subpart AAAA – National Emission Standards for Municipal Solid Waste Landfills

This rule 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. This landfill is subject to this rule because the landfill is required by NSPS Subpart WWW to install and operate a landfill gas collection and control system (GCCS).

40 CFR 60 Subpart XXX – Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014

This rule is applicable to each municipal solid waste landfill that has a design capacity greater than 2.5 million megagrams (Mg) or 2.5 million cubic meters (m^3), if the landfill commenced construction, reconstruction or modification on or after May 30, 1991. Houston County MSW Landfill received a Solid Waste Amendment on December 16, 2015, that increased the design capacity to 46.8 million cubic yards (35.8 million cubic meters). The landfill, however, has not yet commenced construction

on this modification. Therefore, the landfill is not currently subject to Subpart XXX but will be when construction is commenced.

C. Compliance Status

The company did not indicate any noncompliance issues in its application.

D. Permit Conditions

There are no facility wide conditions that are included in Section 2.0 of the initial Title V permit.

III. Regulated Equipment Requirements

A. Equipment List for the Process

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
LFGT	Landfill Gas Treatment System	40 CFR 60 Subpart A 40 CFR 60 Subpart WWW 40 CFR 63 Subpart A 40 CFR 63 Subpart AAAA	N/A	N/A
ENG1	Engine No. 1: Caterpillar G3520C genset, rated at 2,233 bhp and 1600 kWe, (DM5860)	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)	None	None
ENG2	Engine No. 2: Caterpillar G3520C genset, rated at 2,233 bhp and 1600 kWe, (DM5860)	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)	None	None

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

B. Equipment & Rule Applicability

Emission and Operating Caps:

None applicable.

Rules and Regulations Assessment:

Federal Rules

40 CFR 60 Subpart WWW

The landfill is subject to the requirements of 40 CFR 60 Subpart WWW and is 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. CG PS Houston, LLC Generation Plant treats the gas before firing it

in their engines. Since the landfill is not treating the gas before it is supplied to the LFGTE plant, the power generation plant is responsible for treating the gas before use and must comply with 40 CFR 60.752(b)(2)(iii)(C).

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.

Therefore, the engines 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 Generation Plant will continue to be subject to the applicable requirements of Subpart WWW for the gas collection and control system.

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 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 were manufactured after June 12, 2006, 40 CFR 60 Subpart JJJJ is applicable to them. Construction of ENG1 and ENG2 commenced on June 14, 2010. Therefore, the engines with ID. Nos. ENG1 and ENG2 are subject to the following emission standards for NOx, CO, and VOC.

Table 1: Applicable NOx, CO, and VOC Emission per Subpart JJJJ of Part 60

Engine type and fuel	Maximum engine power	Manufacture date	Emission Standards*					
			g/HP-hr			ppmvd at 15% O_2		
			NOx	CO	VOC**	NOx	CO	VOC**
Landfill/Digester Gas	HP ≥500	between 7/1/2007 and 7/1/2010	3.0	5.0	1.0	220	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 O_2.

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

Per Application Nos. 19426 and 19478, NOx, CO, and VOC emission guarantees provided by the vendor are estimated to be 0.5, 4.4 and 0.88 g/HP-hr, respectively. The engines were tested on March 23, 2016 for NOx, CO and VOC, with average results of 77.3, 435, and 5.69 ppmvd @ 15% O_2 respectively, and thus they are compliant with the NSPS standards as well as the NSPS emission standards in Table 1.

Compliance Requirements for Owners and Operators

Per 40 CFR 60.4243(b), engines of their 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 are not manufacturer certified, and are larger than 500 HP, CG PS Houston, LLC Generation 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.

40 CFR Part 63, Subpart AAAA

40 CFR Part 63, Subpart AAAA, "National Emission Standards for Municipal Solid Waste Landfills (NESHAP)" 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, is co-located with a major source, or is subject to the control requirements of 40 CFR 60 Subpart WWW. Houston County MSW Landfill meets these criteria; its NMOC emissions are over 50 Mg per year, so it is subject to the control requirements per WWW. Thus, the landfill is also subject to Subpart AAAA.

Since the LFGTE Generation Plant treats the LFG generated by the landfill, Subpart WWW and therefore Subpart AAAA are also applicable to the generation plant.

40 CFR Part 63 Subpart ZZZZ

The generators are subject to 40 CFR 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (NESHAP)"" because they are stationary reciprocating internal combustion engines at an area source of HAP emissions. In accordance with 40 CFR 63.6590(c), compliance with Subpart ZZZZ will be demonstrated by complying with 40 CFR 60 Subpart JJJJ.

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

Georgia Rules For Air Quality Control

Rule (b) - Visible Emissions

Georgia Rules for Air Quality Control Chapter 391-3-1-.02(2)(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 landfill gas to energy plant is subject to such an emission limitation.

Therefore, the visible emission standard under this rule is applicable to the power station. [Note: Visible emissions from the combustion of LFG in an engine will typically have no percent opacity.]

Rule (g) - Sulfur Dioxide

Rule 391-3-1-.02(2)(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 16.02 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 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 engines are subject to both NSPS 40 CFR 60, Subpart JJJJ and NESHAP 40 CFR 63, Subpart ZZZZ, the generators are exempt from the specific requirements of this rule.

C. Permit Conditions

The permit conditions that are incorporated into Section 3.3 of the 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 ZZZZ - "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" to the LFGTE generation plant.

Condition 3.3.4 establishes the Federal Rule Standards of 40 CFR 63 Subpart A- "General Provisions," and Subpart WWW, as applicable to the to the facility, because the facility is responsible for treatment of LFG before use in LFGTE plant.

Condition No. 3.3.5 establishes the applicability to the power generation plant of 40 CFR 63 Subpart A-"General provisions" and Subpart AAAA-"National Emission Standards for HAPs: MSW Landfills."

Condition No. 3.3.6 requires the Permittee to design, install and operate the LFG treatment system per Subpart WWW.

Condition No. 3.3.7 requires the Permittee to route all LFG purchased through LFG treatment system per 40 CFR 60.752.

Condition No. 3.3.8 requires the Permittee to operate the LFG treatment system at all times LFG is received from the landfill.

Condition No. 3.3.9 requires that the SI IC Engines comply with the emission limits for NOx, 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. 3.3.10 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.

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

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days (or sixty (60) days for tests required by 40 CFR Part 63) prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements

Since the CG PS Houston, LLC Generation Plant is subject to Subpart WWW, the facility is subject to the requirements of the NSPS for the LFG treatment system, 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. ENG1 and ENG2. However, the Permittee is required to conduct performance tests per Subpart JJJJ.

Condition 4.2.1 establishes the requirements for subsequent testing of NOx, CO and VOC emissions required, per NSPS, 40 CFR 60 Subpart JJJJ.

Condition 4.2.2 specifies the procedure to be followed for conducting performance testing and determining compliance, per section 60.4244 of 40 CFR 60 Subpart JJJJ. This is to assure that the engines are operating as designed so that emissions of pollutants are minimized.

Also with Permit Amendment No. 4911-153-0057-V-02-1, the Division had determined that engines that have NOx limits due to 40 CFR 60 Subpart JJJJ alone, additional parameter monitoring (i.e., manifold temperature, manifold pressure, ignition timing, and engine load) is not needed. The engines at CG PS Houston, LLC Generation Plant fall into this category.

V. Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

Houston County MSW Landfill is subject to 40 CFR 60 Subpart WWW, and thus LFG gas collection and control equipment is subject to this subpart. LFG treatment is provided by the CG PS Houston, LLC Generation Plant. Therefore, the LFGTE plant is subject to Subpart WWW.

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 engines are operated properly and in accordance with the manufacturer's specifications and written instructions, certain monitoring conditions have been included in this section below:

Although the purpose of the installation of engines/generators is to produce power from LFG, the engines also destroy 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 engines and also to make sure that the emissions of criteria air pollutants are minimized, engines must be operated properly. Also, the Permittee is required to operate the LFG treatment system efficiently. Note that, because LFG is treated before combustion in the engines, the engines are not subject to the monitoring requirements of Subpart WWW.

Condition 5.2.1 had requirements for the LFG treatment system and the engines. This condition requires (a) a device to record LFG flow to the treatment system, (b) an hour meter on each engine, and (c) a LFG flow meter on each engine.

In Permit Amendment No. 4911-153-0057-V-02-1, the Division had determined that engines that have NOx limits due to 40 CFR 60 Subpart JJJJ alone, additional parameter monitoring (i.e., manifold temperature, manifold pressure, ignition timing, and engine load) is not needed. The engines at CG PS Houston, LLC Generation Plant fall into this category.

As indicated above, the engines are subject to Georgia Rule (b) for "Visible Emissions" by Condition 3.4.1, although the opacity of emissions from the engines is expected to be near zero percent. As also indicated above, the engines are 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) and Rule(b) is minimal, no monitoring is required by the permit.

C. Compliance Assurance Monitoring (CAM)

Not Applicable.

VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis.

B. Specific Record Keeping and Reporting Requirements

Condition No. 6.2.1 contains requirements to submit written notifications for IC engines per 40 CFR 60 Subpart JJJJ.

Condition No. 6.2.2 contains the requirement for the Permittee to submit a semiannual report regarding times when LFG is not being normally handled per Subpart WWW.

Condition No. 6.2.3 provides provisions for the company to rescind the 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, if and when they stop accepting landfill gas from the landfill.

Condition No. 6.2.4 contains the requirements for the Permittee to develop and implement a site-specific treatment monitoring plan, in accordance with 40 CFR 60 Subpart XXX and 40 CFR 63 Subpart AAAA.

VII. Specific Requirements

A. Operational Flexibility

None applicable.

B. Alternative Requirements

None applicable.

C. Insignificant Activities

See Permit Application on GEOS website.
See Attachment B of the permit

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. 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 operates equipment that is subject to Title VI of the 1990 Clean Air Act Amendments.

J. Pollution Prevention

None applicable.

K. 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.

Template Condition Section 8.27 was updated in August 2014 to include more detailed, clear requirements for emergency generator engines currently exempt from SIP permitting and considered insignificant sources in the Title V permit.

Template Condition Section 8.28 was updated in August 2014 to more clearly define the applicability of the Boiler MACT or GACT for major or minor sources of HAP.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//