Facility Name: **MAS Georgia LFG, LLC (Richland Creek)**
City: Buford
County: Gwinnett
AIRS #: 04-13-135-00329

Application #: TV-46269
Date Application Received: June 6, 2017
Permit No: 4911-135-0329-V-02-0

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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:

MAS Georgia LFG, LLC (Richland Creek)

2. Parent/Holding Company Name

I Squared Capital

3. Previous and/or Other Name(s)

None

4. Facility Location

5691 South Richland Creek Road
Buford, Georgia 30518, Gwinnett County

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

MAS Georgia LFG (Richland Creek) is located in Gwinnett County which is currently classified as nonattainment for the 2015 8-hour ozone standard.

B. Site Determination

MAS Georgia LFG, LLC (Richland Creek), a landfill gas (LFG) fired electric power generation facility, is located at the UWL/Richland Creek Road Sanitary Landfill (AIRS No. 135-00219), an operating landfill located in Gwinnett County. The operation of the landfill is managed separately from the power facility. There is no connection between the owner of the landfill, Republic Services of Georgia Limited Partnership, and the owner of the power facility, I Squared Capital. The only source of LFG for the power facility, however, is the Richland Creek Landfill. Because the power facility is located at the landfill and the landfill is the only source of LFG for the power facility, the landfill and power facility are considered one site for Title V and NSR purposes.

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
4911-135-0329-E-01-0	December 1, 2014	Initial construction and operating permit
4911-135-0329-E-01-1	June 15, 2017	Revise facility CO limit

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)

MAS Georgia LFG (Richland Creek) generates electricity for sale.

3. Overall Facility Process Description

MAS Georgia LFG, LLC (Richland Creek), is a power generation plant that is located at the Richland Creek 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 five spark ignition (SI) internal combustion engines (ICE) using treated LFG as fuel. Each engine is a GE Jenbacher J616 GS-E22 and is coupled with an electrical power generator. Each engine-generator pair is rated at 2.176 megawatts of electricity. Emissions from each engine are controlled by a selective catalytic reduction (SCR) with oxidation catalyst system. Prior to being burned in the engines, the LFG is further purified in a LFG Pretreatment System. Emissions from the LFG Pretreatment System are controlled by a thermal oxidizer. Utility flares, owned and operated by the Richland Creek Landfill, are the back-up control devices when the engines are offline and will combust the LFG in excess of that which the engines are capable of combusting.

4. Overall Process Flow Diagram

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

E. Regulatory Status

1. PSD/NSR

Gwinnett County is a listed county in Rule 391-3-1-.03(8)(c)14 "Additional Provisions for Ozone Non-Attainment Area which defines a "major source" as any stationary source that emits or has the potential to emit at least 100 tons per year of VOC or NOx. The combined NSR site of Richland Creek Landfill and MAS Georgia LFG (Richland Creek) has potential NOx and VOC emissions less than 100 tons per year. The site is, therefore, a minor source for PSD and nonattainment area NSR.

Site-wide Potential Emissions (tons/year) with Permit Limits

	CO	NOx	VOC
Richland Creek Landfill	157.7	47.3	1.6
MAS Georgia LFG (Richland Creek)	85.0	24.9	24.9
Total	242.7	72.2	26.5

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	✓			✓
PM_{10}	✓			✓
$PM_{2.5}$	✓			✓
SO_2	✓			✓
VOC	✓			✓
NO_x	✓			✓
CO	✓	✓		
TRS	N/A			
H_2S	N/A			
Individual HAP	✓			✓
Total HAPs	✓			✓

3. MACT Standards

A performance test was conducted on IC Engine 1 (Source Code IC01) on May 17, 2018 to develop a site-specific formaldehyde emission factor. The test determined a 0.13 lb/hr emission rate for formaldehyde. Testing, monitoring, and recordkeeping required by Subpart JJJJ and Rule (mmm) and included in this permit will ensure the engines and their controls are operating properly and remain an area source for HAPS.

40 CFR Part 63, Subpart ZZZZ – "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"

Stationary spark ignition (SI) internal combustion engines (ICE) are subject to Subpart ZZZZ if the stationary SI ICE is located at a major or area source of HAPs. A stationary SI ICE located at an area source of HAPs is "new" if construction is commenced on or after June 12, 2006 [per 40 CFR 63.6590(a)(2)(iii)].

MAS Georgia LFG (Richland Creek) has five GE Jenbacher J616 GS-E22 engines, which are spark ignition engines. The generators were manufactured in 2016.

Under Subpart ZZZZ, these engines are new stationary SI ICE located at an area source of HAPs. In accordance with 40 CFR 63.6590(c), these engines comply with Subpart ZZZZ by complying with 40 CFR 60 Subpart JJJJ – "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines."

4. Program Applicability (AIRS Program Codes)

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

The stationary spark ignition internal combustion engines that compose the landfill gas fueled power station are subject to 40 CFR Part 60 Subpart JJJJ – "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines." Because the facility is subject to Subpart JJJJ, the facility is also subject to 40 CFR Part 60 Subpart A, which contains the "General Provisions" of the New Source Performance Standards (NSPS). These engines are also subject to 40 CFR 63 Subpart ZZZZ – "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines." Because the facility is subject to Subpart ZZZZ, 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).

C. Compliance Status

MAS Georgia LFG (Richland Creek) has not indicated any noncompliance issues.

D. Permit Conditions

Condition 2.2.1 cites the applicability of 40 CFR 60 Subparts A (General Provisions) and JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines).

Condition 2.2.2 cites the applicability of 40 CFR 63 Subparts A (General Provisions) and ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines).

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
IC01	IC Engine 1 GE Jenbacher J616 GS-E22	40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm)	SCR1	Selective Catalytic Reduction (SCR) with Oxidation Catalyst System
IC02	IC Engine 2 GE Jenbacher J616 GS-E22	40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm)	SCR2	Selective Catalytic Reduction (SCR) with Oxidation Catalyst System
IC03	IC Engine 3 GE Jenbacher J616 GS-E22	40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm)	SCR3	Selective Catalytic Reduction (SCR) with Oxidation Catalyst System
IC04	IC Engine 4 GE Jenbacher J616 GS-E22	40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm)	SCR4	Selective Catalytic Reduction (SCR) with Oxidation Catalyst System
IC05	IC Engine 5 GE Jenbacher J616 GS-E22	40 CFR 60 Subpart A 40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart A 40 CFR 63 Subpart ZZZZ 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(mmm)	SCR5	Selective Catalytic Reduction (SCR) with Oxidation Catalyst System

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
PTS1	LFG Pretreatment System	391-3-1-.02(2)(b) 391-3-1-.02(2)(g)	TO01	Thermal Oxidizer

B. Equipment & Rule Applicability

Emission and Operating Caps:

Emissions of NOx, CO, and VOC are limited from the MAS Georgia LFG (Richland Creek) equipment. The following table contains the emission limits for MAS Georgia LFG (Richland Creek) and the potential emissions from the landfill for these pollutants.

	NOx (tons/year)	CO (tons/year)	VOC (tons/year)
MAS Georgia LFG (Richland Creek)	24.9	85.0	24.9
Richland Creek Landfill	47.3	157.7	1.6
Total	72.2	242.7	26.5

Note that MAS Georgia LFG requested these specific numerical emission limits which were negotiated between MAS Georgia LFG and the landfill.

Rules and Regulations Assessment:

40 CFR 60 Subpart JJJJ

Subpart JJJJ regulates emissions from spark ignition internal combustion engines where construction commences after June 12, 2006, and, for emergency generators, where the engine is manufactured on or after January 1, 2009. Because these engines were manufactured in 2016, this rule applies.

Per Subpart JJJJ, Landfill/Digester Gas engines, combusting landfill gas with a maximum engine power greater than or equal to 500 HP is subject to emission standards for NOx, CO, and VOC given in Table 1 of 40 CFR 60 Subpart JJJJ. The emission limits are 2.0 g/HP-hr or 150 ppmvd at 15% oxygen for NOx; 5.0 g/HP-hr or 610 ppmvd at 15% oxygen for CO; and 1.0 g/HP-hr or 80 ppmvd at 15% oxygen for VOC.

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

Richland Creek Landfill is subject to the requirements of 40 CFR 60 Subpart WWW. According to 40 CFR 60.752(b)(2)(iii), a landfill with an NSPS GCCS must route all the collected gas to an open flare, an enclosed combustor, or treat the gas for subsequent sale or use. The LFG is treated by MAS Georgia LFG prior to its use in the engines. A closed flare (i.e, the Thermal Oxidizer) is in the MAS Georgia LFG facility. The Thermal Oxidizer is used to control emissions from the LFG Pretreatment System. The LFG Pretreatment System is used to remove siloxanes from the LFG after the gas has passed through the LFG treatment system. Therefore, the Thermal Oxidizer is not subject to Subpart WWW.

40 CFR 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ regulates emissions from reciprocating internal combustion engines at major and area sources of HAPs. This facility is an area source of HAP emissions In accordance with 40 CFR 63.6590(c), compliance with Subpart ZZZZ will be shown by showing compliance with 40 CFR 60 Subpart JJJJ.

40 CFR 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 collocated with a major source of HAPS, or is subject to the control requirements of 40 CFR 60 Subpart WWW. These landfill is required to install a gas collection and control system (GCCS) to comply with 40 CFR 60 Subpart WWW. Subpart AAAA is, therefore, applicable. Subpart AAAA mirrors the requirements of 40 CFR 60 Subpart WWW and adds conditions for Startup, Shutdown, and Malfunction plans, and bioreactors.

Georgia Rule (b) - Visible Emissions

Rule (b) limits the opacity of visible emissions from any air contaminant source that is subject to some other emission limitation under 391-3-1-.02(2). The opacity of visible emissions from regulated sources may not exceed 40 percent under this general visible emission standard. Because all of the equipment at the facility burns LFG exclusively, the opacity is expected to be well below 40 percent.

Georgia Rule (g) - Sulfur Dioxide

Rule (g) applies to all "fuel burning" sources. The fuel burning sources at the site are the five engines. The fuel sulfur content limit for fuels burned is 2.5 percent by weight, in accordance with Rule (g)2. The only fuel used at this facility is LFG which complies with Rule (g).

391-3-1-.02(2)(mmm) – "NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity"

Rule (mmm) applies to stationary engines used to generate electricity whose nameplate capacity is between 100 kilowatts (kW) and 25 megawatts (MW) located in the area around Atlanta including Gwinnett County. The engines at this facility are subject to the NOx limit in this rule during the ozone season.

C. Permit Conditions

Condition 3.2.1 contains NOx, CO, and VOC limits requested by the Permittee that apply to the entire power generation facility. In addition to avoiding applicability to PSD, these limits also ensures that the entire PSD site, which includes the landfill emissions, remains minor with respect to PSD regulations. These emission limits were negotiated between MAS Georgia LFG and Republic Services of Georgia Limited Parnership.

Condition 3.3.1 contains the NOx, CO, and VOC limits that apply to the engines per NSPS Subpart JJJJ.

Conditions 3.3.2 and 3.3.3 contain the general applicability of 40 CFR 60 Subparts A and WWW and 40 CFR 63 Subparts A and AAAA.

Condition 3.3.4 contains the requirements for the LFG treatment system due to Subpart WWW.

Condition 3.4.1 contains the NOx limit that applies to the engine during the ozone season due to Georgia Rule (mmm).

Conditions 3.4.2 and 3.4.3 contain the emission limits due to Georgia Rules (b) and (g).

Conditions 3.5.1 and 3.5.2 requires the use of the Thermal Oxidizer with the LFG Pretreatment System and sets a minimum operating temperature for the Thermal Oxidizer.

Condition 3.5.3 requires the use of the Selective Catalytic Reduction (SCR) with Oxidation Catalyst Systems whenever the IC Engines are run.

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

The engines used by MAS Georgia LFG are not "certified engines" under the requirements of 40 CFR 60 Subpart JJJJ. The test requirements for non-certified engines are included in Conditions 4.2.1 and 4.2.2. Condition 4.2.3 requires that emission factors for NOx, VOC, and CO be determined whenever the IC engines are tested for Subpart JJJJ purposes. The emission factors are used to show compliance with the ton per year emission limits.

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

Condition 5.2.1 requires monitoring of various parameters including flow rate to the treatment system due to Subpart WWW.

Condition 5.2.2 contains annual monitoring of the engines due to Georgia Rule (mmm).

Condition 5.2.3 requires the monthly hours of operation of the Thermal Oxidizer be recorded for purposes of determining the annual emissions for the facility in Condition 6.2.2.

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 6.2.1 requires the Permittee keep records of the information required in 40 CFR 60.4245(a).

Condition 6.2.2 and 6.2.3 require the determination of the monthly and 12-consecutive month total emissions of NOx, VOC, and CO for the entire power generation facility.

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

None applicable.

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.//