

## Application Review

**Issue Date:**

**Region:** Mooresville Regional Office  
**County:** Gaston  
**NC Facility ID:** 3600339  
**Inspector's Name:** Karyn Kurek  
**Date of Last Inspection:** 10/20/2021  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>	<b>Permit Applicability (this application only)</b>
<p><b>Applicant (Facility's Name):</b> Gaston County Landfill - Hardin Site</p> <p><b>Facility Address:</b>                  Gaston County Landfill - Hardin Site                  3155 Philadelphia Church Road                  Dallas, NC 28034  <b>SIC:</b> 4953 / Refuse Systems  <b>NAICS:</b> 562212 / Solid Waste Landfill</p> <p><b>Facility Classification: Before:</b> Title V   <b>After:</b> Title V  <b>Fee Classification: Before:</b> Title V   <b>After:</b> Title V</p>	<p><b>SIP:</b> 15A NCAC 02D .0516, 02D .0521, 02D .1110, 02D .1111, 02D .1806, 40 CFR 62 Subpart 000  <b>NSPS:</b> Subparts JJJJ  <b>NESHAP:</b> Subpart ZZZZ  <b>PSD:</b> N/A  <b>PSD Avoidance:</b> N/A  <b>NC Toxics:</b> N/A  <b>112(r):</b> N/A  <b>Other:</b> N/A</p>

<b>Contact Data</b>			<b>Application Data</b>
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<p><b>Application Number:</b> 3600339.20A  <b>Date Received:</b> 06/29/2020  <b>Application Type:</b> Renewal/Modification  <b>Application Schedule:</b> TV-Renewal</p> <p style="text-align: center;"><b>Existing Permit Data</b></p> <p><b>Existing Permit Number:</b> 09884/T04  <b>Existing Permit Issue Date:</b> 04/20/2016  <b>Existing Permit Expiration Date:</b> 03/31/2021</p>
Marcie Smith Solid Waste & Recycling Administrator 3155 Philadelphia Church Rd. Dallas, NC 28034 (704) 922-0267	Dan Ziehm, P.E. Public Works Director PO Box 1578 Gastonia, NC 28503 (704) 862-7504	Emily Tucker, P.E. 440 South Church Street, Suite 1200 Charlotte, NC 28202 (704) 338-6800	

**Total Actual emissions in TONS/YEAR:**

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	2.50	44.00	15.00	122.40	6.20	10.35	6.48 [Formaldehyde]
2020	2.10	34.40	9.10	109.70	6.60	12.34	8.38 [Formaldehyde]
2019	2.70	30.20	21.30	114.80	7.20	15.49	11.85 [Formaldehyde]
2018	1.70	39.50	15.10	140.30	8.00	19.24	17.24 [Formaldehyde]
2017	1.80	36.10	12.60	157.20	7.90	26.88	24.89 [Formaldehyde]
2016	1.80	37.90	13.30	167.90	8.30	28.51	26.47 [Formaldehyde]

<p><b>Review Engineer:</b> Massoud M. Eslambolchi/Booker T. Pullen</p> <p><b>Review Engineer's Signature:</b> _____      <b>Date:</b> _____</p>	<p style="text-align: center;"><b>Comments / Recommendations:</b></p> <p><b>Issue:</b> 09884T05  <b>Permit Issue Date:</b> xxxxxxxxxx, 2022  <b>Permit Expiration Date:</b> xxxxxx, xx 2027</p>
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**1. Purpose of Application:**

Gaston County Landfill – Hardin Site (Gaston County Landfill) is located at 3155 Philadelphia Church Road in Dallas, Gaston County, NC that submitted a Title V Renewal with Modification application for existing Permit 09884T04. The initial Renewal application was received by the Mooresville Regional Office on June 29, 2020 and forwarded to the Raleigh Central Office which was stamped received on July 9, 2020. An amendment to the renewal application, requesting a modification to the permit, was received by RCO on August 24, 2021. The reason for the modification was to incorporate the requirements of NSPS XXX into the body of the renewed permit.

After substantial discussions with the US EPA, Region IV concerning the applicability of Subpart XXX and the definition of a modification at landfills, it has been determined that a modification did not occur at the Gaston County landfill – Hardin Site with the approval of the vertical expansion permit issued by the Division of Waste Management (August 7, 2020). This is because all expansions (building of horizontal and vertical cells) within the landfill were pre-approved (1997) in the site suitability determination and construction plan for the lined Subtitle D landfill. Therefore, because there was not an increase for additional volume and mass that was not already included in the suitability determination and construction plan, this facility is still considered an existing facility for air quality purposes. The modification will be to add the federal regulations (40 CFR 62, Subpart OOO) for existing landfills into the permit to replace the outdated Subpart WWW regulations.

**2. Facility Description:**

Gaston County Landfill is an active municipal solid waste landfill (ID No. ES-1) which is permitted as a Title V facility that operates a “voluntary” landfill gas collection system (ID No. CD-GCCS), two LFG flares (ID Nos. CD-3 & CD-4), and three landfill gas internal combustion Jenbacher Model No. JMS420 GS-L.L. engines at 1,996 horsepower each (ID Nos. ES-2, 3 and 4 ) with a generator unit (1421 KW maximum capacity) for each engine. The landfill currently operates 112 well heads for landfill gas extraction. The previous permit, 1<sup>st</sup> Title V issued on April 15, 2016, consolidated the landfill site and the adjacent gas-to-energy facility into one permit for the landfill. The prior name of the gas-to-energy facility was Gaston County Green Energy Park (Permit No. 10047R00, facility ID No. 3600343).

**3. Application Chronology:**

June 29, 2020	Mooresville Regional Office received the Permit Renewal application. The application was deemed complete and included all the necessary forms, with authorized signatures.
July 9, 2020	The application was received in the Raleigh Central Office. An acknowledgement letter was sent to the Responsible Official indicating that the application was deemed complete on June 29, 2020.
May 26, 2021	Received emailed letter from Zach Priester (HDR, Incorporated) on behalf of Gaston County Landfill concerning applicability determinations for NSPS XXX and MACT AAAA.
July 7, 2021	DAQ sent an additional information letter requesting that the County provide the necessary information to update the permit to include the applicable regulations of NSPS Subpart XXX and MACT AAAA. The landfill continues to dispute that they are subject to NSPS Subpart XXX.
August 24, 2021	Application was amended to request a modification to the renewal permit to include recent responses to the applicability determinations for NSPS XXX and MACT AAAA.

August 27, 2021	Received application modification fee (\$1,002.00) to amend the renewal application to add the responses of the applicability determination for NSPS XXX and MACT AAAA.
November 20, 2021	Date of the most recent compliance inspection conducted by MRO. Compliance was indicated.
April 25, 2022	DAQ (Booker Pullen and Mark Cuilla) participated in a Teams meeting with the US EPA, Region IV and discussed the guidelines used to determine when modifications occurred at landfills that held “life of site” design capacity permits. It was determined that a modification did not occur at this facility because of the pre-approval of a suitability determination and construction plan in 1997 that allows the landfill to expand as long as it does not cross over the initial design plan capacity.
November 04, 2022	Draft permit sent to the facility.
November 04, 2022	Draft permit and review sent to Stationary Compliance Branch & MRO.
XXXXXX	Notices posted for public comment period (30 days) and EPA review period (45 days).

**4. Emissions Sources, Control Devices and Insignificant Sources:**

**Change in Equipment:** There are no new pieces of equipment proposed with this permit renewal/modification. The following table includes all existing permitted sources and controls with their descriptions and ID No’s.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-1	Municipal solid waste landfill facility	CD-GCCS*  CD-3*  CD-4*	One landfill gas collection system with,  One landfill gas-fired open flare (56.83 million Btu per hour maximum heat input based on landfill gas), and  One landfill gas-fired open flare (5.8 million Btu per hour maximum heat input based on landfill gas)
ES-2 NSPS JJJJ, MACT ZZZZ	One landfill gas-fired internal combustion engine (1,996 horsepower) powering an electrical generator (1,421 kilowatt maximum capacity)	N/A	N/A
ES-3 NSPS JJJJ, MACT ZZZZ	One landfill gas-fired internal combustion engine (1,996 horsepower) powering an electrical generator (1,421 kilowatt maximum capacity)	N/A	N/A

ES-4 NSPS JJJJ, MACT ZZZZ	One landfill gas-fired internal combustion engine (1,996 horsepower) powering an electrical generator (1,421 kilowatt maximum capacity)		
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\* Voluntary landfill gas collection and control system

The facility’s insignificant/exempt activities are as follows:

Emission Source ID No.	Emission Source Description
IES-1	Two (2) leachate storage tanks (250,000 gallon capacity, each)
IES-2	Oil storage tank (1,000 gallon capacity)
IES-3	Waste oil tank (300 gallon capacity)
IES-4	Waste oil furnace (0.0175 million Btu per hour maximum heat capacity)

**5. NSPS, NESHAP/MACT, PSD, 112(r), CAM, and Attainment Status:**

- NSPS Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Combustion.**  
This facility has three landfill gas-fired internal combustion engines (ES-2, ES-3, and ES-4). Each engine is subject to NSPS Subpart JJJJ. In accordance with this Subpart (40 CFR 60.4230(a)(4)(i)), the provisions of this NSPS are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICEs) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured: (i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP). These engines were initially installed after April 15, 2016, they are each greater than 500 hp (at 1,996 HP) and are not considered to be lean burn engines. Compliance is expected with these NSPS requirements.
- NSPS Subpart XXX – Standards of Performance for Municipal Solid Waste Landfills**  
This landfill (ES-1) is greater than the Title V thresholds, however it is NOT subject to NSPS Subpart XXX because it has never met the definition of a modification at an existing landfill site as defined in 40 CFR 60.761. Per this Subpart, a modification means an increase in the permitted volume design capacity of the landfill by either lateral or vertical expansion based on its permitted design capacity as of July 17, 2014. This facility has a “life-of-site” permit which is effective from December 23, 1997 through December 23, 2057 that was issued by the North Carolina Department of Environmental Quality, Division of Waste Management, Solid Waste Section. In accordance with N.C.G.S. 130A-294 (a2), a “life-of-site” permit is defined as a permit that is effective from the initial receipt of solid waste at the facility until the facility reaches its final permitted elevations, which the period shall not exceed 60 years. According to recent EPA guidance, unless a landfill requests a permit to increase the volume design capacity that is different from the initial design capacity request, any operation permits requested during the life of the landfill is not considered a modification to the landfill (see EPA applicability determination dated October 23, 2019, adi\_1900034).

This facility is considered an existing municipal solid waste landfill and would normally be subject to the State of North Carolina Rules for “existing landfills” as codified in 15A NCAC 02D .1700. However, the State Implementation plan for existing landfill is not yet approved by the US EPA and therefore this facility is subject to the Federal Regulations as codified in 40 CFR 62, Subpart OOO.

**NMOC**

According to the January 15, 2021 memorandum from the DAQ Stationary Source Compliance Branch, the NMOC emissions from this landfill are below the 34 Mg threshold requirements that require the installation and operation a gas collection and control system. For this renewal, the current GCCS is still considered a “voluntary” system.

Emissions Year Modeled	Estimated Annual Waste Acceptance Rate (Mg/yr)	Cumulative Waste	Modeled Tier 2 NMOC Emissions (Mg/yr)	NMOC Emission Limit (Mg/yr)	Compliance
2019	186,509	3,660,857	20.5	34	Yes
2020	188,374	3,847,366	21.3	34	Yes
2021	190,258	4,035,741	22.2	34	Yes
2022	192,160	4,225,998	23.1	34	Yes
2023	194,082	4,418,159	23.9	34	Yes
2024	196,023	4,612,241	24.8	34	Yes
2025	197,983	4,795,385	25.7	34	Yes

At the time of this permit renewal/modification, the data analysis report indicates that the landfill maintained a total NMOC rate below the 34 Mg per year NMOC threshold for applicability of the requirement to install a gas collection and control system (GCCS). The facility continues to operate a GCCS, in combination with LFG utility flares. Any applicable operational standards, monitoring, recordkeeping and reporting requirements for these sources and controls will be addressed in the regulatory requirements in the renewed permit for this facility. See the regulatory analysis in Section 6 of this review below.

- **MACT/GACT Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines at an Area Source of HAPs**

The landfill gas-fired engines in the engine/generator sets (ES-2, ES-3, and ES-4) are subject to this regulation because they are reciprocating internal combustion engines that are located at an area source of HAPs. The largest individual HAP is formaldehyde with a total (three engines) potential to emit of 9.63 tons per year (see calculations below). The most current versions of the permit stipulations for NSPS Subpart ZZZZ shall be placed in the new permit. See the regulatory analysis in Section 6 of this review below.

Formaldehyde emissions from LFG-fired engines have recently been found to be more significant than previously thought. In 2016 the DAQ developed an emissions factor of  $1.107 \times 10^{-3}$  pounds of formaldehyde per brake horsepower hour. The Gaston County Landfill performed site specific testing on October 20<sup>th</sup> and 21<sup>st</sup>, 2021 and the results were approved in a DAQ memo dated January 18, 2022. The site-specific calculations have been used in the calculations below to determine the formaldehyde emissions. This test along with tests in previous years indicate that the formaldehyde emissions have been consistently below 10 tons per year for an individual HAP.

Site specific emission factors:

- ES-2 = 0.208 grams/hp-hr ( $4.6 \times 10^{-4}$  lbs/hp-hr)
- ES-3 = 0.141 grams/hp-hr ( $3.1 \times 10^{-4}$  lbs/hp-hr)
- ES-4 = 0.149 grams/hp-hr ( $3.3 \times 10^{-4}$  lbs/hp-hr)

**Example of potential emission calculations for formaldehyde:**

**ES-2**

$$\frac{1,996 \text{ hp}}{1} \times \frac{4.6 \times 10^{-4} \text{ lb}}{\text{hp} - \text{hr}} \times \frac{8760 \text{ hrs}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 4.02 \frac{\text{tons formaldehyde}}{\text{yr}}$$

**ES-3**

$$\frac{1,996 \text{ hp}}{1} \times \frac{3.1 \times 10^{-4} \text{ lb}}{\text{hp} - \text{hr}} \times \frac{8760 \text{ hrs}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 2.71 \frac{\text{tons formaldehyde}}{\text{yr}}$$

**ES-4**

$$\frac{1,996 \text{ hp}}{1} \times \frac{3.3 \times 10^{-4} \text{ lb}}{\text{hp} - \text{hr}} \times \frac{8760 \text{ hrs}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 2.9 \frac{\text{tons formaldehyde}}{\text{yr}}$$

The total potential annual emissions of formaldehyde for engines ES-2, ES-3 and ES-4 = 9.63 tons per year. Therefore, the engines are not by themselves a major source of HAPs as defined in 40 CFR 63.2, the landfill itself is not a major source of HAPs, and the landfill is not collocated at a major source of HAPs. A HAP avoidance condition will be placed into the permit tracking the hours of operation for each engine and using the site-specific emission factors for each engine. Since the practical usage of these engines are not expected to run for 8760 hours per year, compliance with the regulation is expected.

The annual inventory for this facility is based on actual hours of operation during the year. According to the Air Pollutant Point Source Emissions Inventory - Calendar Year 2021, maximum emissions of formaldehyde for the entire year were 12957.44 pounds per year (6.48 tons per year). For Calendar Year 2020, the maximum emissions of formaldehyde for the entire year were 16,765.6 pounds per year (8.4 tons per year).

The HAP avoidance condition will track the hours of operation of each engine. These engines are currently tested every 8760 hours or every three years, whichever comes first to demonstrate compliance with NSPS Subpart JJJJ requirements for CO, NOx and VOCs. The emissions of formaldehyde are also tested along with the criteria pollutants. The site-specific formaldehyde emission rate (lbs/hp-hour) will be used to track the emissions of formaldehyde.

- **MACT Subpart AAAA – National Emission Standards for HAP for Municipal Solid Waste Landfills**  
This landfill (ES-1) is NOT subject to Subpart AAAA because it is NOT a major source of HAPs on its own, it does not have an NMOC emission rate from the landfill greater than 50 Mg per year and it is not collocated with a major source of HAPs (the potential emissions of formaldehyde are calculated to be 9.63 tons per year total). See the regulatory analysis in Section 6 of this review below.
- **PSD - Gaston County Landfill – Hardin Site** is a minor source for PSD. The Charlotte-Gaston-Rock Hill area is currently listed as being in attainment for ozone and RACT does not apply. This renewal/modification does not change this status.

Calculation of the potential emissions of CO and NOx from the firing of landfill gas in engines ES-2, ES-3, ES-4 are done using the current SB-3 limits in the permit.

CO: 4.0 g/Hp-hr  
NOx: 1.5 g/Hp-hr

**ES-2, ES-3 and ES-4**

$$\frac{1,996 \text{ hp}}{1} \times \frac{4.0 \text{ grams CO}}{\text{hp} - \text{hr}} \times \frac{1.0 \text{ lb}}{453.59 \text{ grams}} \times \frac{8760 \text{ hrs}}{\text{yr}} \times \frac{1 \text{ ton CO}}{2000 \text{ lbs}} \times \frac{3.0 \text{ engines}}{1} = 231.3 \frac{\text{tons CO}}{\text{yr}}$$

$$\frac{1,996 \text{ hp}}{1} \times \frac{1.5 \text{ grams NO}_x}{\text{hp} - \text{hr}} \times \frac{1.0 \text{ lb}}{453.59 \text{ grams}} \times \frac{8760 \text{ hrs}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \frac{3.0 \text{ engines}}{1} = 86.7 \frac{\text{tons NO}_x}{\text{yr}}$$

No PSD avoidance conditions will be placed in the renewed permit.

- **112(r)** – This facility does NOT store any of the listed 112(r) chemicals in amounts that exceed the threshold quantities. Therefore, the facility is not required to maintain a written Management Plan (RMP).
- **CAM** – CAM does NOT apply since the facility’s sources are regulated by NSPS and NESHAP (MACT) rules that were proposed after November 15, 1990 and control the pollutants which would be subject to CAM.
- **Attainment status** – Gaston County is in attainment for all criteria pollutants.

## 6. Regulatory Review

The facility is subject to the following regulations: 15A NCAC 02D .0516, 02D .0521, 02D .0524 (Subpart JJJJ), 02D .1111 (Subpart ZZZZ), 02D .1806, State BACT limits, and 40 CFR 62, Subpart OOO.

### 02D .0516 – Sulfur Dioxide Emissions from Combustion Sources

Sulfur dioxide emissions from the flares (CD-3 and CD-4) and landfill gas-fired engines (ES-2, ES-3, and ES-4) shall not exceed 2.3 pounds per million Btu. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. The two utility open flares (CD-3 and CD-4) and the three LFG fired genset engines (ES-2, ES-3, and ES-4), each discharge into the atmosphere sulfur dioxide emissions due to combustion of landfill gas.

The potential emissions of sulfur dioxide are well below the regulatory allowable limit when burning landfill gas because the landfill gas sulfur content is negligible. Continued compliance is expected. No monitoring, recordkeeping, testing, or reporting is required for sulfur dioxide emissions from the engines or the open flares when firing landfill gas. The requirements of this regulation will remain in the renewed permit.

### 02D .0521 – Visible Emissions Control Requirement

This regulation applies to each of the two flares (CD-3 and CD-4) and each of the three engines (ES-2, ES-3, and ES-4). This Rule applies to all fuel burning sources and to other industrial processes having a visible emission. This Rule does not apply to engine maintenance, rebuild, and testing activities where controls are infeasible. For sources manufactured after July 1, 1971, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period. The six-minute averaging periods may exceed 20 percent opacity if: (1) no six-minute period exceeds 87 percent opacity; (2) no more than one six-minute period exceeds 20 percent opacity in any hour; and (3) no more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

The flares and the engines were manufactured after July 1, 1971. The current regulation listed in the existing permit will remain in the renewed permit. Compliance is expected and will be verified during facility inspections.

### 02D .0524 – NSPS Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Combustion

The landfill gas-fired internal combustion engines (ES-2, ES-3, and ES-4) are each subject to this Subpart. In accordance with this Subpart (40 CFR 60.4230(a)(4)(i)), the provisions of this NSPS are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE)s that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

- (i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP). These engines were initially installed after April 15, 2016, they are each greater than 500 hp (at 1,996 HP) and are not considered to be lean burn engines. Compliance is expected with these NSPS requirements.

**Emission Standards** [40 CFR 60.4233(e)]

- a. The Permittee shall comply with the following emission standards for spark ignition (SI) engines for model year manufactured after July 1, 2010. Stationary spark ignition internal combustion engines shall achieve the required emission standards over the entire life of the engine. These values are taken from Table 1 located in 40 CFR 60.4248, Table 1 (for landfill/digester gas engines).

Exhaust emission standards:

CO: 5.0 g/HP-hr or 610 ppmvd at 15% O<sub>2</sub>

NO<sub>x</sub>: 2.0 g/HP-hr or 150 ppmvd at 15% O<sub>2</sub>

VOCs: 1.0 g/HP-hr or 80 ppmvd at 15% O<sub>2</sub>

**Testing** [15A NCAC 02Q .0508(f), 40 CFR 60.8]

- b. If emission testing is required, the testing shall be performed in accordance with General Condition JJ. If the results of this test are above the limit given in the permit, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0524.

In accordance with [15A NCAC 02Q .0508(f), 40 CFR 60.4243(b) and 40 CFR 60.4244]:

- c. The Permittee shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. An initial Performance has been conducted for NO<sub>x</sub>, CO, and VOC emissions for engines ES-2, ES-3, and ES-4) and the Permittee shall conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, there after to demonstrate compliance.

**Recordkeeping/Reporting/Notification** [15A NCAC 02Q .0508(f), 40 CFR 60.4245]

- d. Stationary spark (SI) ignition internal combustion engines shall meet the following notification, reporting and recordkeeping requirements.

i. Keep records of the following information:

(A) All notifications submitted to comply with this subpart and all documentation supporting a any notification.

(B) Maintenance conducted on the engine.

(C) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

(D) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

ii. Stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231 must submit an initial notification as required in 40 CFR §60.7(a)(1). The notification must include the information:

(A) Name and address of the Permittee;

(B) The address of the affected source;

(C) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(D) Emission control equipment; and

(E) Fuel used.

iii. Stationary SI ICE that are subject to performance testing shall submit a copy of each performance test as conducted in 40 CFR 60.4244 within 60 days after the test has been completed.

CO: 5.0 g/HP-hr or 610 ppmvd at 15% O<sub>2</sub>

NO<sub>x</sub>: 2.0 g/HP-hr or 150 ppmvd at 15% O<sub>2</sub>

VOCs: 1.0 g/HP-hr or 80 ppmvd at 15% O<sub>2</sub>



This regulation will remain in the permit. Continued compliance is expected and will be verified through stack testing.

**02D .1111 – National Emissions Standards for Hazardous Air Pollutants Subpart AAAAA**

The Gaston County Landfill – Hardin site (ES-1) is NOT subject to Subpart AAAAA because it is NOT a major source of HAPs on its own, it does not have an NMOC emission rate from the landfill greater than 50 Mg per year and it is not collocated with a major source of HAPs (the potential emissions of the single HAP formaldehyde are calculated to be 9.63 tons per year total). Compliance is expected.

**02D .1111 – National Emissions Standards for Hazardous Air Pollutants Subpart ZZZZ**

The landfill gas-fired internal combustion engines (ES-2, ES-3, and ES-4) are each subject to this Subpart because they are reciprocating internal combustion engines (RICE) that are an area source of HAPs (since the largest single HAP formaldehyde is less than 10 tons per year) and the landfill is also an area source of HAPs. These stationary RICE units are internal combustion engines which use reciprocating motion to convert heat energy into mechanical work and they are not mobile. These engines can meet the requirements of MACT/GACT Subpart ZZZZ by meeting the requirements of NSPS Subpart JJJJ. The requirements of this regulation will remain in the renewed permit.

**40 CFR 62, Subpart OOO – Federal Regulations for Municipal Solid Waste Landfills**

This facility is subject to the Part 70 Title V program because the design capacity of the landfill is greater than or equal to 2.5 million megagrams and 2.5 million cubic meters. 40 CFR 62, Subpart OOO (Federal Rules for Municipal Solid Waste Landfills) applies to this landfill because it has accepted waste since November 8, 1987, the landfill commenced construction, reconstruction, or modification on or before July 17, 2014 and the State Rules for North Carolina (as codified under 15A NCAC 02D .1700) for existing landfills have not been approved by the US EPA. Physical or operational changes made to an existing MSW landfill solely to comply with an emission standard under this Section are not considered a modification or re-construction of the landfill, and do not subject an existing MSW landfill to the requirements of 40 CFR 60, Subpart XXX.

Per recent EPA guidance and discussions with the US EPA Region IV concerning the applicability of Subpart XXX, it has been determined that a modification did not occur at the Gaston County landfill – Hardin Site with the vertical expansion permit issued by the Division of Waste Management on August 7, 2020. This is because all expansions (building of horizontal and vertical cells) within the landfill were pre-approved in 1997 when the site suitability determination and construction plan for the lined Subtitle D landfill. Therefore, because there was not an increase for additional volume and mass that was not already included in the suitability determination and construction plan, this facility is still considered an existing facility for air quality purposes. As a result, the Gaston County Landfill – Hardin site is subject to the federal rule (40 CFR 62, Subpart OOO) since the State implementation Plan for the North Carolina state rules for existing landfills (codified as 15A NCAC 02D .1700) has not been approved.

**02D .1806 - Control and Prohibition of Odorous Emissions**

The owner or operator of a facility subject to this Rule shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. Continued compliance is expected and will be verified during facility inspections. The requirements of this regulation will remain in the renewed permit.

**State BACT Limits**

The landfill gas-fired engines (ES-2, 3 and 4) were originally permitted at a gas-to-energy facility located adjacent to the Gaston County Landfill named Gaston County Green Energy Park. The two facilities were combined under the one permit and issued as the 1<sup>st</sup> Time Title V permit for the Gaston County Landfill - Hardin Site) on April 15, 2016.

The established State BACT limits will not change in the renewal permit.

- Carbon Monoxide emissions shall not exceed 4.0 g/hp-hr.
- Nitrogen Oxide emissions shall not exceed 1.5 g/hp-hr.
- PM<sub>10</sub>/PM<sub>2.5</sub>, Sulfur Dioxide, Volatile Organic Compounds, Mercury, and Lead shall be controlled from each engine using good combustion practices and the burning of landfill gas in the engine.

Testing for CO, NO<sub>x</sub>, and VOCs shall continue to be done per the NSPS JJJJ standards where an initial performance test (for CO, NO<sub>x</sub>, VOCs) was done and have subsequently performed every 8,760 hours or 3 years (whichever comes first) thereafter to demonstrate compliance for each unit.

The most recent SB-3 test was conducted on October 20 and 21, 2021. The Stationary Source Compliance Branch reviewed the results of the test and stated in a January 18, 2022 memo that the emissions test results demonstrate compliance with the applicable regulations.

The Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

- i. The Permittee shall perform an annual inspection (for each 12-month period following the initial inspection) to ensure the engine is operating properly.
- ii. The results of the inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
  - (A) The date and time of each recorded action;
  - (B) The results of each inspection;
  - (C) The results of any maintenance performed on the engine; and
  - (D) Any variance from manufacturer's recommendations, if any, and the corrections made.

This regulation will remain in the permit. Continued compliance is expected and will continue to be verified through stack testing.

**7. Facility Wide Air Toxics:**

This landfill is NOT subject to MACT Subpart AAAA, NESHAP for Municipal Solid Waste Landfill because it by itself is NOT a major source of HAPs (10/25), it does not emit greater than 50 Mg of NMOC emissions per year and it is not collocated with a major source of Hazardous Air Pollutants.

Each of the landfill gas-fired generators is subject to MACT Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines for an area source of HAPs. North Carolina GS. 143-215.107(a) exempts emission sources subject to MACT/GACT (Subpart ZZZZ) standards from NC air toxics regulations provided their emissions do not “present an unacceptable risk to human health.”

This facility did submit a toxic air pollutant review in the previous application (3600339.15A in 2015) for the 1<sup>st</sup> Time Title V air permit. Benzene, hydrogen sulfide, and vinyl chloride were noted to exceed the NC TPERs in the year 2020. However, no modeling was required at that time due to the North Carolina State regulation 15A NCAC 02Q .0706 since the permit application did not represent a request for modification of the landfill or any equipment associated with it.

This renewal/modification application proposes no increase in emissions due to any change in operation of sources, control or any equipment modification. The facility’s annual emissions inventory AQEI report indicates a decrease in the actual emissions of toxic air pollutants and HAPs over the last few years.

**8. Compliance Status:**

The last inspection conducted on October 20, 2021 by Mr. Jim Vanwormer of the Mooresville Regional Office states, that “based on my observations during this inspection, this facility appeared to be in

compliance with the applicable air quality regulations.”

**9. Changes to the Permit No. 09884T04:**

Old Page No.	New Permit Section	Description
Page 1	Cover letter	Added revised cover page, updated letterhead, changed Permit revision number and date
Page 2	Cover letter	Revised PSD increment tracking statement, changed engineer’s name to Massoud Eslambolchi along with contact information.
Page 3	Cover letter	Added page containing “Notice Regarding The Right to Contest A Division Of Air Quality Permit”.
Page 4	Cover letter	Revised the Summary Of “Changes To The Permits” table.
Cover page	Permit	Changed Permit number Changed “Replaces Permit” number Revised effective date of Permit Revised application number Revised complete application date
Page 2	Table of Contents	Moved/added Insignificant Activities list as Section 3 of the permit and the General Conditions as Section 4 of the permit
Page 3	List of Acronyms	Added the list of Acronyms to the front of the permit
Page 4	Permitted Sources Table	Revised the descriptions for ES-2, ES-3, ES-4
Page 5	Section 2.1	Removed outdated regulation for NSPS WWW from permit, added Federal Regulations as codified in 40 CFR 62, Subpart OOO for existing landfills
-----	Section 2.1 Pages 6-33	Renumbered regulations due to the removal of the NSPS WWW regulations, added Federal Regulations as codified in 40 CFR 62, Subpart OOO for existing landfills.
-----	Section 3 Page 37	Added Insignificant Activities as Section 3
-----	Section 4 Pages 38-46	Added General Conditions as Section 4

\* This list is not intended to be a detailed record of every change made to the permit but a summary of those changes.

**10. Other Considerations:**

- A P.E. seal was NOT required for this renewal application.
- A zoning consistency determination was NOT required for this renewal application.
- This facility is NOT subject to the 112(r) program as it does not store any of the listed chemicals in quantities above the program thresholds.

**11. Public Notice Review:**

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA.

Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above.

The 30-day public notice period was from XXXX, XX, 2022 through XXXX, XX, 2022

The 45-day EPA review period was from XXXX, XX, 2022 through XXXX, XX, 2022

**12. Conclusions, Comments, and Recommendations:**

This air permit application for the Gaston County Landfill – Hardin Site, located at 3155 Philadelphia Church Road, Dallas, North Carolina, has been reviewed by the DAQ to determine compliance with all procedures and requirements. Continued compliance with this air permit is expected. Recommend issuance of air permit No. 09884T05.