NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Alamance
NC Facility ID: 0100314
Inspector's Name: N/A
Date of Last Inspection: N/A – initial permit
Compliance Code: N/A

Facility Data

Applicant (Facility's Name): Alamance County Landfill

Facility Address:
Alamance County Landfill
2701 Austin Quarter Road
Graham, NC 27253

SIC: 4953 / Refuse Systems
NAICS: 562212 / Solid Waste Landfill

Facility Classification: Before: N/A **After:** Title V
Fee Classification: Before: N/A **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0524, 02D .1100, 02D .1806, and 02Q .0711
NSPS: Subpart XXX
NESHAP: Subpart ZZZZ
PSD: N/A
PSD Avoidance: N/A
NC Toxics: Yes: benzene, hydrogen sulfide, vinyl chloride, acrylonitrile, methylene chloride, methyl mercaptan
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Richard Hill Solid Waste Director (336) 376-8902 2701 Austin Quarter Road Graham, NC 27253	Heidi York County Manager (336) 570-4044 124 West Elm Street Graham, NC 27253	Richard Hill Solid Waste Director (336) 376-8902 2701 Austin Quarter Road Graham, NC 27253

Application Data

Application Number: 0100314.23A
Date Received: 08/28/2023
Application Type: New Permit
Application Schedule: TV-1st Time

Existing Permit Data
Existing Permit Number: N/A
Existing Permit Issue Date: N/A
Existing Permit Expiration Date: N/A

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP

<No Inventory>

Review Engineer: Suraiya Akter

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue: 10806T00
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

Alamance County Landfill is an active, lined municipal solid waste (MSW) landfill owned and operated by Alamance County and is located at 2701 Austin Quarter Road in Graham, North Carolina. The landfill commenced filling operations in 1993 and has an 85.5-acre waste footprint and a waste design capacity of 4,557,427 tons. The landfill currently consists of phases 1 through 5. On December 9, 2022, the landfill was issued a solid waste permit to operate phase 1 through 5 and construct phase 6 cell 1A. The landfill commenced construction of phase 6 cell 1A on May 30, 2023, which increased the design capacity to exceed the 2.5 million megagrams (Mg) and 2.5 million cubic meter (m^3) threshold for municipal solid waste landfills according to NSPS Subpart XXX (modification after July 17, 2014).

Hence, this application was submitted for a 1st time Title V air permit because the expansion exceeded the design capacity threshold for obtaining a Title V permit.

2. Facility Description

The Alamance County Landfill is an existing MSW landfill that has triggered NSPS Subpart XXX, located in Graham, Alamance County, North Carolina. The landfill operates under Permit No. 0104-MSWLF-1994, issued by the Division of Waste Management's Solid Waste Section. The landfill's design capacity exceeds the 2.5 million Mg and 2.5 million m^3 mass and volume thresholds, respectively and is required by NSPS Subpart XXX to maintain a Title V permit.

A Tier 1 estimation of NMOC emission for 2022 (309 Mg/yr) indicated an exceedance of the threshold of 34 Mg NMOC/year which was submitted within 90 days after the date of commenced construction. Since the Tier 1 results indicate that the NMOC rate exceeds the threshold, the facility has agreed to conduct a Tier 2 NMOC sampling event and submit the results of the Tier 2 analysis. A revised Tier 2 evaluation, received by the Winston-Salem Regional Office on February 8, 2024, indicates that the NMOC emissions will peak at 30.4 Mg/year in 2029. Since the NMOC generation rate estimates for the 2024 to 2029 are below 34 Mg/year, the Landfill is not subject to the NSPS XXX requirements to install and operate an Gas Control and Collection System (GCCS)

Note: the NMOC emission rate estimated by the Landgem "Landfill Gas Emissions Model" (received on August 23, 2023) did not include phases 5 and 6 for the landfill. This facility is required to continue to submit annual NMOC reports.

3. History/Background/Application Chronology

History: Division of Waste Management

Permit No.	Issue Date	Status	Expiration
0104-MSWLF-1994	April 19, 2022	Active	March 17, 2054
0104-CDLF-1993	Not Applicable	Inactive	Not Applicable

Application Chronology: Division of Air Quality Permitting

August 28, 2023 The Division of Air Quality (DAQ), Winston-Salem Regional Office, received Application No.0100314.23A, for a 1st – Time Title V air permit. A copy was forwarded to Raleigh Central Office (RCO). The application contained required

	forms, and there was no request for confidentiality. The application included an $11,452 application fee.
September 05, 223	Sent acknowledgment letter indicating that the application for permit was complete.
January 02, 2024	Draft permit and review forwarded to Pullen Booker for comments. After couple of round of discussion, the final review was completed by January 05, 2024. There were seven air toxics that exceeded the TPER limits hence AQAB modeling branch was requested to perform dispersion modeling.
March 06, 2024	Nancy Jones from AQAB submitted AQAB submitted a modeling memo mentioning the compliance of the seven air toxics with Acceptable Ambient Levels (AALs)
Mach 07, 2024	Draft permit and review forwarded to Mark Cuilla for review and received comments on March 11, 2024.
March 11, 2024	Draft permit and permit review forwarded region, applicant and SSCB for comments. SSCB complete review by March 18, 2024, and region completed their review by March 18, 2024.
March 18, 2024	Draft permit review by the applicant was completed March 18, 2024.
XXXX, 2024	The Public Notice and EPA Review periods began.
XXXX, 2024	Public comment period ends. No comments received.
xxxx	EPA comment period ends. No comments received.
xxxx	Permit issued.

4. Permit Modifications/Changes and TVEE Discussion

This is the first air Permit for this facility. The emission source ES-01 will be added to TVEE along with insignificant activities IES-1, IES-2, IES-3, IES-4, IES-5, IES-6, and IES-7.

The facility's permitted emission sources are as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-01 **NSPS XXX**	Active Municipal Solid Waste Landfill	N/A	N/A

The facility's insignificant/exempt activities that will be listed in the 1st Time Title V permit as follows:

Emission Source ID No.	Emission Source Description

IES-1 GACT ZZZZ	86 HP Diesel-fired emergency generator
IES-2 GACT ZZZZ NSPS IIII	74.3 HP Diesel-fired emergency generator
IES-3	Two (2) above-ground oil recycling tanks (300 gallons each)
IES-4	Two (2) Leachate storage tanks (340,000 gallons each)
IES-5	Used motor oil tote (275 gallons)
IES-6	DEF fluid tote (275 gallons)
IES-7	Antifreeze tote (275 gallons)

5. Regulatory Review

Alamance County Landfill is subject to the following regulations in addition to the General Conditions:

15A NCAC 02D .0524: New Source Performance Standards, 40 CFR 60, Subpart XXX
15A NCAC 02D .1806: Control and Prohibition of Odorous Emissions
15A NCAC 02D .1100: Control of Toxic Air Pollutants
15A NCAC 02Q .0711: Emission Rates Requiring a Permit

- 15A NCAC 02D .0524: New Source Performance Standards, 40 CFR 60, Subpart XXX - The facility (ES-1) is subject to 40 CFR 60, Subpart XXX since it was modified after July 17, 2014, having commenced construction on an expansion into Phases 6 Cell 1A on May 30, 2023.

  The facility submitted the design capacity report and NMOC emission rate report on August 23, 2023, indicating that the NMOC emission rate exceeds the 34 Mg/yr threshold using the Tier 1 methodology. EPA's Landfill Gas Emission Model (LandGEM) was used to calculate the NMOC rate. Using stipulated default parameters and site-specific waste acceptance data, the NMOC emission rate estimation was 309 Mg/yr for CY2022 which is greater than the NSPS XXX threshold of 34 Mg.

  The application indicated the NMOC emission rate will exceed 34 Mg/yr, and the facility elected to conduct Tier 2 NMOC sampling event and submit the results of the Tier 2 analysis. The result was submitted on February 8, 2024 and the results indicated the NMOC emissions are less than 34 Mg/year.

  The landfill is required to continue conducting 5-year NMOC emission rate estimates using the Tier 2 methodology once completed to demonstrate that the NMOC emission rate is below the 34 Mg/yr threshold. The NSPS XXX permit condition contains requirements for the landfill to submit a gas collection and control system design plan for approval upon exceeding the threshold. Continued compliance is expected.

- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions – This is a "State-enforceable only" requirement and is applicable facility wide. The Permittee shall implement practices or controls sufficient to prevent odorous emissions from causing or contributing to objectionable odors beyond the property boundary. Continued compliance is expected.

- 15A NCAC 02D .1100, Control of Toxic Air Pollutants - The following toxic air pollutants were calculated by the DAQ and the applicant (Carlson Environmental Consultants): benzene, hydrogen sulfide, acrylonitrile, methyl chloroform, methyl mercaptan and vinyl chloride. Dispersion modeling was performed for the Alamance County Landfill facility located in Graham, NC. The modeling memorandum from Nancy Jones AQAB, dated March 06, 2024 states that the modeling adequately demonstrates compliance with Acceptable Ambient Levels (AALs) outlined in 15A NCAC 02D.1104, on a source-by-source basis. See Item number 7 below.

- 15A NCAC 02Q .0711: Emission Rates Requiring A Permit
  The toxic air pollutants were calculated using AP-42 emissions factors for municipal solid waste landfills. The mass emissions of toxic air pollutants constituents found in landfill gas were calculated for each area based on the maximum methane generation rates and average sampled constituent concentrations of toxic air pollutants as determined by EPA. The maximum total landfill gas generation rate for the Alamance County Landfill will occur in the year of closure (2038).
  This value was used to calculate the worse-case toxic air pollutant emissions over the life of the landfill. LandGEM 3.02 was used to calculate future emissions from the landfill.
  The Landfill Gas Emissions Model (LandGEM) is an automated estimation tool with a Microsoft Excel interface that can be used to estimate emission rates for total landfill gas, methane, carbon dioxide, nonmethane organic compounds, and individual air pollutants. from municipal solid waste landfills. The software uses the pollutant concentrations in landfill gas (ppmv), molecular weights of pollutants, the time duration of waste in-place and the annualized waste placement of the landfill to calculate emissions from the landfill. See Section 7 below.

6. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS

- ✓ The MSW landfill (ID No. ES-1) is subject to 40 CFR 60, Subpart XXX "Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification After July 17, 2014" since the facility has been modified after the July 17, 2014 applicability date.

- ✓ The MSW landfill (ID No. ES-1) is not subject to 40 CFR 60, Subpart WWW "Municipal Solid Waste Landfills" since it is superseded by NSPS Subpart XXX.

NESHAP

- ✓ The MSW landfill (ID No. ES-01) is NOT subject to 40 CFR 63, Subpart AAAA "Municipal Solid Waste Landfills." The landfill's design capacity exceeds the 2.5 million Mg and 2.5 million m^3 thresholds, the uncontrolled NMOC emission rate, determined using the Tier 1 methodology, is greater than 300 Mg/yr. However, the NMOC emissions are not greater than the Subpart XXX threshold i.e. 34 Mg/year according to the Tier 2 calculation submitted by the Applicant on February 8, 2024. Additionally, the landfill is not, nor is it collocated with, a major source of HAPs.
- ✓ The diesel-fired emergency generators (ID No. IES-1 and IES-2) are subject to 40 CFR 63, Subpart ZZZZ "Reciprocating Internal Combustion Engines," and is considered as an existing emergency engine under this regulation.

PSD

The facility's potential criteria pollutant emissions are below PSD permitting thresholds for criteria pollutants.

- ✓ Alamance County has triggered increment tracking under PSD for PM_{10} and SO_2. This 1st time Title V permit does not increase or decrease increment.

112(r)

The 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 Risk Management Plan (RMP).

CAM

The CAM rule (15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) at Title V facilities that meets all three following criteria:

- the unit is subject to any (non-exempt: e.g. pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

This facility does not currently use any control devices and the landfill is subject to a post November 1990 NSPS standard that regulates the pollutants that would be subject to CAM for this facility. CAM does not apply.

ATTAINMENT STATUS

Alamance County is in attainment for all criteria pollutants.

7. Facility Wide Air Toxics

Landfill gas is generated 8760 hours per year. Since the landfill is not operating the GCCS, the application assumes 100% of the gas is fugitive emissions. The estimated emissions from the landfill will be compared to the toxic emission limits listed in 15A NCAC 02Q .0711(a) because the emissions are considered coming from a volume source (obstructed or non-vertical stack).

Toxic Air Pollutants from the Landfill:

The toxic air pollutants were calculated using AP-42 emissions factors for municipal solid waste landfills. The mass emissions of toxic air pollutants constituents found in landfill gas were calculated for each area based on the maximum methane generation rates and average sampled constituent concentrations of toxic air pollutants as determined by EPA.

The total maximum landfill gas generation rate for the Alamance County Landfill through the year of closure (2038) was used to calculate the worse-case toxic air pollutant emissions over the life of the landfill. LandGEM 3.02 was used to calculate future emissions from the landfill. The Landfill Gas Emissions Model (LandGEM) is an automated estimation tool with a Microsoft Excel interface that can be used to estimate emission rates for total landfill gas, methane, carbon dioxide, nonmethane organic compounds, and individual air pollutants. from municipal solid waste landfills. The software uses the pollutant concentrations in landfill gas (ppmv), molecular weights of pollutants, the time duration of waste in-place and the annualized waste placement of the landfill to calculate emissions from the landfill.

This landfill began operation in 1993 and is scheduled to close in the year 2038. The total maximum landfill gas flow rate that will be generated by the landfill through the closure year was calculated by the LandGEM software summary that was submitted in application No. 0100314.23A and is equal to 606,542,400 ft^3 per year or 17,175,362.82 m^3 per year.

The following equation from AP-42, fifth edition, Section 2.4.4.1 "Emissions", Revised October 2008, is used to calculate the individual toxic air pollutant flow rates (m3/yr) as a part of the landfill gas/methane generation from the landfill using Equation 3.

$Q_p = Q_{CH4} \times C_p / C_{CH4} \times (1 \times 10^6)$ Equation 3

Where:

Q_p = Emission rate of pollutants, m^3/yr

Q_{CH4} = 50% of the total landfill gas amount through year 2038
= 50% of 1,154 scfm
= 50% of 17,175,362.82 m^3/yr
= 8,587,681.4 m^3/yr

C_p = concentration of pollutant in landfill gas (from Table 2.4-1, "Default Concentration for Landfill gas constituents for landfills with waste in place on or after 1992", Section 2.4.5

C_{CH4} = 50% of landfill gas is methane (0.50)

The following equation from AP-42, fifth edition, Section 2.4.4.1 "Emissions", Revised November 1998, is used to calculate the uncontrolled emissions of individual toxic air pollutants present in landfill gas.

$$UM_p = Q_p \left[\frac{MW_S \times 1 \text{ atmosphere}}{\left(8.205 \times 10^{-5} \frac{m^3 - \text{atmosphere}}{\text{gmol} - {}^0\text{K}}\right)\left(1000 \frac{g}{kg}\right)(273 + T^0\text{K})} \right]$$

Where:

Pollutant	Cp	MW	Qp	Ump					Threshold limits Per 15A 02Q . 0711(a)	
	ppmv	g/gmol	m^3/yr	kg/yr	ton/yr	lb/year	lb/hr	lb/day	rate	unit
1,1,1-Trichloroethane (methyl chloroform)	0.24	133.41	4.17	22.77	0.03	50.21	0.01	0.14	250.00	lb/day
									64.00	lb/hr
1,1,2,2 tetrachloroethane	0.54	167.85	9.19	63.08	0.07	139.09	0.02	0.38	430.00	lb/yr
1,1-Dichloroethane (ethylidene dichloride)	2.08	98.97	35.72	144.60	0.16	318.85	0.04	0.87	NA	NA
1,1-Dichloroethane (vinylidene chloride)	0.16	96.94	2.75	10.90	0.01	24.02	0.00	0.07	2.50	lb/day
1,2 Dichloroethane (ethylene dichloride)	0.16	98.96	2.73	11.05	0.01	24.37	0.00	0.07	260.00	lb/yr

1,2- Dichloropropane (propylene dichloride)	0.05	112.99	0.89	4.13	0.00	9.10	0.00	0.02	NA	NA
Benzene*	2.40	78.11	41.22	131.68	0.15	290.36	0.03	0.80	8.10	lb/yr
Acrylonitrile*	0.00	53.06	0.00	0.00	0.00	0.00	0.00	0.00	0.40	lb/day
									0.22	lb/hr
carbon disulfide	0.15	76.13	2.52	7.86	0.01	17.33	0.00	0.05	3.90	lb/day
carbon tetrachloride	0.01	153.84	0.14	0.86	0.00	1.90	0.00	0.01	460.00	lb/yr
carbonil sulfide	0.12	60.07	2.10	5.15	0.01	11.35	0.00	0.03	NA	NA
chlorobenzene	0.48	112.56	8.31	38.27	0.04	84.38	0.01	0.23	46.00	lb/day
chloroethane (ethyl chloride)	3.95	64.52	67.84	179.02	0.20	394.74	0.05	1.08	NA	NA
chloroform	0.03	119.39	0.52	2.52	0.00	5.55	0.00	0.02	293.00	lb/yr
chloromethane	0.24	50.49	4.19	8.65	0.01	19.08	0.00	0.05	NA	NA
dichlorobenzene	0.94	147.00	16.14	97.06	0.11	214.03	0.02	0.59	NA	NA
dichlorodifluoromethane	1.18	120.91	20.27	100.22	0.11	220.99	0.03	0.61	NA	NA
dichlorofluromethane	2.62	102.92	45.00	189.41	0.21	417.66	0.05	1.14	NA	NA
Dichloromethane (methylene chloride)*	6.15	84.94	105.63	366.94	0.40	809.11	0.09	2.22	1600.00	lb/yr
									0.39	lb/hr
Ethyl mercaptan (ethanethiol)*	2.28	62.13	39.16	99.51	0.11	219.41	0.03	0.60	0.03	lb/hr
ethylbenzene	4.61	106.16	79.18	343.77	0.38	758.02	0.09	2.08	NA	NA
ethylene dibromide	0.00	187.88	0.02	0.13	0.00	0.29	0.00	0.00	27.00	lb/yr
hexane	3.10	86.18	53.24	187.66	0.21	413.80	0.05	1.13	23.00	lb/day
methyl isobutyl ketone	1.87	100.16	32.12	131.57	0.15	290.11	0.03	0.79	52.00	lb/day
Methyl mercaptan*	1.37	48.11	23.53	46.30	0.05	102.09	0.012	0.28	0.013	lb/hr
perchloroethylene	2.03	165.83	34.87	236.47	0.26	521.41	0.06	1.43	13000.00	lb/yr
trichloroethylene	0.83	131.40	14.22	76.43	0.08	168.52	0.02	0.46	4000.00	lb/yr
Hydrogen sulfide*	32.00	34.08	549.61	766.06	0.84	1689.15	0.19	4.63	1.70	lb/day
mercury and compounds	0.00	200.51	0.00	0.02	0.00	0.04	0.00	0.00	NA	NA
methyl ethyl ketone	7.09	72.11	121.77	359.13	0.40	791.88	0.09	2.17	78.00	lb/day
toluene	29.50	92.13	506.67	1909.12	2.10	4209.62	0.48	11.53	98.00	lb/day
vinyl chloride*	1.42	62.50	24.39	62.34	0.07	137.46	0.02	0.38	26.00	lb/yr
xylene	9.23	106.16	158.53	688.29	0.76	1517.69	0.17	4.16	57.00	lb/day
									16.40	lb/hr

*Pollutants exceeded TPER outlined in 15A NCAC 02Q .0700

Dispersion modeling was performed for the Alamance County Landfill facility located in Graham, NC. The emissions of seven toxic air pollutants (benzene, hydrogen sulfide, acrylonitrile, methyl chloroform, methyl mercaptan and vinyl chloride) were estimated to exceed toxic air pollutant (TAP) emissions rates (TPERs) outlined in 15A NCAC 02Q .0700. The modeling memorandum from Nancy Jones, AQAB, dated March 06, 2024 states that the modeling adequately demonstrates compliance with Acceptable Ambient Levels (AALs) outlined in 15A NCAC 02D.1104, on a source-by-source basis.

Seven air toxics were evaluated using AERMOD (v22112) and five years (2014-2018) of surface meteorological data from Burlington with upper air data from Greensboro. Emissions were modeled from an area poly-area source for the Phase 1 to 5 portions of the landfill with emissions estimated for the maximum year. Two emergency engines were also modeled for benzene, because all other TAPs were below the TPERs. Release parameters and emission rates are attached.

Maximum Modeled Toxics Impacts for Alamance County Landfill
Graham, Alamance County, NC

Pollutant	Averaging Period	Max. Conc. ($\mu g/m^3$)	AAL ($\mu g/m^3$)	% of AAL
Acrylonitrile	1-hour	4.12	1,000	<1
	24-hour	0.67	30	2
Benzene	Annual	0.028	0.12	23
Ethyl Mercaptan	1-hour	2.06	100	2
Hydrogen Sulfide	24-hour	2.33	120	2
Methyl Mercaptan	1-hour	1.37	50	3
Methylene Chloride	1-hour	14.43	1,700	1
	Annual	0.19	24	1
Vinyl Chloride	Annual	0.074	0.38	19

This compliance demonstration assumes the source parameters and pollutant emission rates used in the dispersion modeling analysis are correct.

8. Facility Emissions Review

MSW Landfill Emissions:
Landfill volume emissions were calculated using the maximum landfill gas generation rate of 1,154 ft^3/min (17,175,362.82 m^3/yr) through the year 2038 using LandGEM, and AP-42 Chapter 2.4, 2010 Draft. All the emissions are fugitive landfill emissions, and the facility wide calculation is given in the following example.

Example:

- CY2040 LFG generation rate from LandGEM = 17,175,362.82 m^3/yr (or 1,960 m^3/hour)
- Methane is 50% of this gas stream (980 m^3/hour)
- Q_{NMOC} = Emission rate of NMOCs, m^3/hour
- C_{NMOC} = Concentration of NMOCs (838 ppmv)
- Multiplication factor for 50% methane concentration in landfill gas = 2.0
- Molecular weight of NMOC (as n-hexane) = 86.18 g/gmol

$$Q_{NMOC} = 2.0 \times Q_{CH_4} \times \left(\frac{C_{NMOC}}{1\times10^6}\right) \text{ (AP-42, Equation 3)}$$

$$Q_{NMOC} = 2.0 \times 980 \frac{m^3}{hour} \times \left(\frac{838 \text{ parts}}{1\times10^6}\right) = 1.64 \frac{m^3}{hour} = 14388.12 \text{ } m^3/\text{year}$$

The uncontrolled mass emission rate of NMOC (UM_{NMOC}) was found using Equation 4 of AP-42, Section 2.4.4.2.

$$UM_{NMOC} = 1.64 \frac{m^3}{hour} \times \left[\frac{86.18 \text{ g/gmol} \times 1 \text{ atm}}{8.205 \times 10^{-5} \frac{m^3 - atm}{gmol - K} \times 1000 \frac{g}{kg} \times (273 + 25℃) \text{ K}} \right] \times 2.205 \frac{lb}{kg}$$

$$UM_{NMOC} = 12.77 \frac{\text{lb NMOC}}{\text{hour}} = 55.91 \frac{\text{tons NMOC}}{\text{year}}$$

To calculate the VOC component of the landfill's uncontrolled surface emissions, AP-42 states in note "b" of Table 2.4-1 that VOC emissions are 99.7 wt.% of the NMOC emission rate, therefore:

$$UM_{VOC} = 0.997 \times 55.91 \frac{\text{tons NMOC}}{\text{year}} = 55.74 \frac{\text{tons VOC}}{\text{year}}$$

Pollutant	Potential Before Controls / Limitations tons/yr	Potential After Controls / Limitations tons/yr
PM	14.35	-----
PM_{10}	14.35	-----
$PM_{2.5}$	1.7	-----
VOC	55.74	N/A
NMOC	55.91	N/A
CO	NA	N/A
SO2	NA	N/A
NOx	NA	N/A
Lead	NA	N/A
GHG	163,545	N/A

9. Compliance Status

This application is for a 1st time Title V permit. This facility has never held an air permit.

10. Public Notice/EPA and Affected State(s) 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 provided to the public under 02Q .0521 above.

11. Other Regulatory Considerations

a. Miscellaneous

- A Processional Engineer's seal is not required for this 1st Time Title V permit application; however, the application was sealed by Kristofer L. Carlson (seal 028334) who is a registered Professional Engineer in the state of North Carolina.
- A zoning consistency determination is not required for this 1st Title V permit for the landfill.
- A permit fee ($11,452.00) is required for this 1st Time Title V application and was received on August 28, 2023.

b. Emergency Affirmative Defense:

EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA's current interpretation of the enforcement structure of the CAA, in light of prior court decisions[1]. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[2] and will harmonize the EPA's treatment of affirmative defenses across different CAA programs.

As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

Regarding NCDAQ, it has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition J.

Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

c. PFAS

The NC DEQ has determined that per- and polyfluoroalkyl substances, also known as PFAS, have been and are being deposited in landfills. PFAS has become a significant concern since 2017. PFAS compounds are commonly used in industrial processes and found in waste streams where they can be emitted into the air, deposited into surface water or soil, and eventually reach groundwater. PFAS are also found in many commercial products that eventually find their way to landfills. In response to the growing concern about PFAS, NC DAQ has developed a list of screening questions that are sent to

[1] NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

[2] In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 (July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources:
Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

identified industries to help to identify potential air emission sources of emerging contaminants. These questions will be sent to Landfills that are currently collecting landfill gas and burning the gas onsite in a flare or other combustion device and to facilities that receive landfill gas for renewable natural gas facilities.

The Alamance County currently does not have a gas collection and control system, therefore the PFAS testing requirement will not be placed in the Title V permit. However, the following PFAS Disclosure statement will be placed into the Title V permit.

State-enforceable only
Disclosure of Information Relating to Emissions of Fluorinated Chemicals [15A NCAC 02Q .0508(f)]
The Permittee shall have an ongoing duty to disclose the known presence of materials containing fluorinated chemicals at the Facility that have the potential to result in the emission of fluorinated chemicals to the environment. Such disclosures shall be in writing and submitted to the Regional Office Supervisor within thirty days of the Permittee becoming aware of such information, unless such information has already been disclosed to DAQ by the Permittee.

The disclosure shall describe the identity, quantity, and use of such material to the extent known. DAQ may require the permittee to conduct analysis or testing of fluorinated chemical emissions as necessary to properly evaluate emissions sources at the Facility.

As used in this condition, the term "fluorinated chemicals" includes but is not limited to per- and polyfluoroalkyl substances (PFAS).

12. Recommendations

The 1st time Title V permit application for the Alamance County Landfill located in Graham, Alamance County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 10806T00.