ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MICHAEL ABRACZINSKAS
Director

NORTH CAROLINA
Environmental Quality

TBD

Shane Walker
Area President
East Carolina Regional Solid Waste Landfill
2440 Whitehall Park Drive, Suite 800
Charlotte, NC 28273

SUBJECT: Air Quality Permit No. 08849T09
Facility ID: 0800102
East Carolina Regional Solid Waste Landfill
Aulander
Bertie County
Fee Class: Title V
PSD Class: Minor

Dear Mr. Walker:

In accordance with your completed Air Quality Permit Application for Renewal of your Title V permit, we are forwarding, herewith, Air Quality Permit No. 08849T09 authorizing the construction and operation of the emission source(s) and associated air pollution control device(s) specified herein. Additionally, any emissions activities determined from your Air Quality Permit Application as being insignificant per 15A North Carolina Administrative Code 02Q .0503(8) have been identified as such in the permit. Please note, the requirements for the annual compliance certification are contained in General Condition P in Section 4. The current owner is responsible for submitting a compliance certification for the entire year regardless of who owned the facility during the year.

As the designated responsible official, it is your responsibility to review, understand, and abide by all of the terms and conditions of the attached permit. It is also your responsibility to ensure that any person who operates any emission source and associated air pollution control device subject to any term or condition of the attached permit reviews, understands, and abides by the condition(s) of the attached permit that are applicable to that particular emission source.

If any parts, requirements, or limitations contained in this Air Quality Permit are unacceptable to you, you have the right to file a petition for a contested case hearing in the North Carolina Office of Administrative Hearings. Information regarding the right, procedure, and time limit for permittees and other persons aggrieved to file such a petition is contained in the attached "Notice Regarding the Right to Contest a Division of Air Quality Permit Decision."

The construction of new air pollution emission source(s) and associated air pollution control device(s), or modifications to existing emission source(s) and air pollution control device(s) described in this permit must be covered under an Air Quality Permit issued by the Division of Air Quality prior to construction unless the Permittee has fulfilled the requirements of NCGS 143-215.108A(b) and received written approval from the Director of the Division of Air Quality to commence construction.

Failure to receive an Air Quality Permit or written approval prior to commencing construction is a violation of NCGS 143-215.108A and may subject the Permittee to civil or criminal penalties as described in NCGS 143-215.114A and 143-215.114B.

Bertie County has triggered increment tracking under PSD for PM10, SO2, and NOx. However, this permit Renewal does not expand or consume increments for any pollutants.

This Air Quality Permit shall be effective from TBD, until TBD, is non-transferable to future owners and operators and shall be subject to the conditions and limitations as specified therein.

Should you have any questions concerning this matter, please contact Massoud M. Eslambolchi at (919) 707-8728, or massoud.eslambolchi@deq.nc.gov.

Sincerely yours,

Mark J. Cuilla, EIT, CPM, Chief, Permitting Section
Division of Air Quality, NCDEQ

Enclosure

c: Laserfiche (0800102)

NOTICE REGARDING THE RIGHT TO CONTEST A DIVISION OF AIR QUALITY PERMIT DECISION

Right of the Permit Applicant or Permittee to File a Contested Case: Pursuant to NCGS 143-215.108(e), a permit applicant or permittee who is dissatisfied with the Division of Air Quality's decision on a permit application may commence a contested case by filing a petition under NCGS 150B-23 in the Office of Administrative Hearings within 30 days after the Division notifies the applicant or permittee of its decision. If the applicant or permittee does not file a petition within the required time, the Division's decision on the application is final and is not subject to review. The filing of a petition will stay the Division's decision until resolution of the contested case.

Right of Other Persons Aggrieved to File a Contested Case: Pursuant to NCGS 143-215.108(e1), a person other than an applicant or permittee who is a person aggrieved by the Division's decision on a permit application may commence a contested case by filing a petition under NCGS 150B-23 within 30 days after the Division provides notice of its decision on a permit application, as provided in NCGS 150B-23(f), or by posting the decision on a publicly available Web site. The filing of a petition under this subsection does not stay the Division's decision except as ordered by the administrative law judge under NCGS 150B-33(b).

General Filing Instructions: A petition for contested case hearing must be in the form of a written petition, conforming to NCGS 150B-23, and filed with the Office of Administrative Hearings, 1711 New Hope Church Road, Raleigh NC, 27609, along with a fee in an amount provided in NCGS 150B-23.2. A petition for contested case hearing form may be obtained upon request from the Office of Administrative Hearings or on its website at https://www.oah.nc.gov/hearings-division/filing/hearing-forms. Additional specific instructions for filing a petition are set forth at 26 NCAC Chapter 03.

Service Instructions: A party filing a contested case is required to serve a copy of the petition, by any means authorized under 26 NCAC 03 .0102, on the process agent for the Department of Environmental Quality:

William F. Lane, General Counsel
North Carolina Department of Environmental Quality
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

If the party filing the petition is a person aggrieved other than the permittee or permit applicant, the party **must also** serve the permittee in accordance with NCGS 150B-23(a).

* * *

Additional information is available at https://www.oah.nc.gov/hearings-division/hearing-process/filing-contested-case. Please contact the OAH at 984-236-1850 or oah.postmaster@oah.nc.gov with all questions regarding the filing fee and/or the details of the filing process.

Summary of Changes to Permit

The following changes were made to Air Permit No. 08849T08:*

Page No.	Section	Description of Changes
------	Cover letter	● Updated letterhead and permit using new permit shell ● Updated permit revision numbers and dates throughout
------	Cover letter	● Added page containing "Notice Regarding The Right to Contest A Division of Air Quality Permit"
------	Cover letter	● Revised the Summary of Changes to the Permit page
1	1st Page of Permit	● Changed number, changed "Replaces Permit" number ● Changed effective date and issue date of the Permit ● Revised the application number and complete application date
Page 3	List of Acronyms	● Added list to the front of the permit
Page 5	Section 2.1	● Removed NSPS WWW citation for NMOC row and replaced with Federal regulations for existing landfills pursuant to 40 CFR 40 CFR 62, Subpart OOO
Page 6	Section 2.1 A.3	● Updated MACT AAAA requirements
Page 18	Section 2.1 A.4	● Added 40 CFR 62, Subpart OOO requirements for existing municipal solid waste landfills
Page 46	Section 2.1 A.7	● Added PFAS Disclosure statement (State-enforceable only)
Page 48	Section 3	● Added new Section 3 for Insignificant Activities
Page 49	Section 4	● Added new Section 4 for General Conditions (with updated version 8.0, 7/10/2024)

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

State of North Carolina
Department of Environmental Quality
Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
08849T09	08849T08	TBD	TBD, 2029

NOTE: Per General Condition K, a permit application for the renewal of this Title V permit shall be submitted no later than December 31, 2028.

Until such time as this permit expires or is modified or revoked, the below named Permittee is permitted to construct and operate the emission source(s) and associated air pollution control device(s) specified herein, in accordance with the terms, conditions, and limitations within this permit. This permit is issued under the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and Title 15A North Carolina Administrative Codes (15A NCAC), Subchapters 02D and 02Q, and other applicable Laws.

Pursuant to Title 15A NCAC, Subchapter 02Q, the Permittee shall not construct, operate, or modify any emission source(s) or air pollution control device(s) without having first submitted a complete Air Quality Permit Application to the permitting authority and received an Air Quality Permit, except as provided in this permit.

Permittee:	**East Carolina Regional Solid Waste Landfill**
Facility ID:	**0800102**
Primary SIC Code:	**4953**
NAICS Code:	**562212**
Facility Site Location:	**1922 Republican Road**
City, County, State, Zip:	**Aulander, Bertie County, NC 27805**
Mailing Address:	**2440 Whitehall Park Drive, Suite 800**
City, State, Zip:	**Charlotte, NC 28273**
Application Numbers:	**0800102.20A**
Complete Application Dates:	**December 21, 2020**
Division of Air Quality, Regional Office Address:	**Washington Regional Office 943 Washington Square Mall Washington, North Carolina, 27889**

Permit issued this the xxth day of xxxx 2024.

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Mark J. Cuilla, EIT, CPM, Chief, Air Permitting Section
By Authority of the Environmental Management Commission

Table of Contents

List of Acronyms

AOS	Alternative Operating Scenario
BACT	Best Available Control Technology
BAE	Baseline Actual Emissions
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMS	Continuous Opacity Monitoring System
CSAPR	Cross-State Air Pollution Rule
DAQ	Division of Air Quality
DEQ	Department of Environmental Quality
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
FR	Federal Register
GACT	Generally Available Control Technology
GHGs	Greenhouse Gases
HAP	Hazardous Air Pollutant
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
NAA	Non-Attainment Area
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statutes
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
OAH	Office of Administrative Hearings
PAE	Projected Actual Emissions
PAL	Plantwide Applicability Limitation
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter with Nominal Aerodynamic Diameter of 2.5 Micrometers or Less
PM_{10}	Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less
POS	Primary Operating Scenario
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	Tons Per Year
VOC	Volatile Organic Compound

SECTION 1 - PERMITTED EMISSION SOURCE(S) AND ASSOCIATED AIR POLLUTION CONTROL DEVICE(S) AND APPURTENANCES

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 **MACT AAAA** **40 CFR 62 OOO**	Municipal solid waste landfill	CD-GCCS1	One landfill gas collection and control system
		CD-Flare1	One landfill gas-fired open flare (3,000 scfm maximum flow rate)
		CD-Flare2	One landfill gas-fired open flare (3,000 scfm maximum flow rate)

SECTION 2 - SPECIFIC LIMITATIONS AND CONDITIONS

2.1 Emission Source(s) and Control Device(s) Specific Limitations and Conditions

The emission source(s) and associated air pollution control device(s) and appurtenances listed below are subject to the following specific terms, conditions, and limitations, including the testing, monitoring, recordkeeping, and reporting requirements as specified herein:

A. Municipal solid waste landfill (ID No. ES-01) and associated landfill gas collection and control system with landfill gas treatment system (ID No. CD-GCCS1), two landfill gas-fired utility flares (ID Nos. CD-Flare1 and CD-Flare2)

The following table provides a summary of limits and standards for the emission source(s) described above:

Pollutant	Limits/Standards	Applicable Regulation
Sulfur Dioxide	2.3 pounds per million Btu heat input	15A NCAC 02D .0516
Visible Emissions	20 percent opacity	15A NCAC 02D .0521
Hazardous Air Pollutants (HAPs)	Route landfill gas to a non-enclosed flare designed in accordance with 40 CFR 60.18, or Route landfill gas to an enclosed combustion device that reduces NMOC emissions by 98 weight percent or reduces the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at three percent oxygen, or Route the collected landfill gas to a landfill gas treatment system that processes the collected gas for subsequent sale or use	15A NCAC 02D .1111 40 CFR 63 Subpart AAAA
Nonmethane Organic Compounds (NMOC)	Emission control requirements and compliance schedules for the control of designated pollutants from certain designated municipal solid waste landfills	40 CFR 62 Subpart OOO
Carbon Monoxide Emissions	Less than 250 tons per consecutive 12 months	15A NCAC 02Q .0317 of 02D .0530 PSD Avoidance
Odorous Emissions	**State-enforceable only** Apply suitable odor control measures	15A NCAC 02D .1806
----------	**State-enforceable only** See Section 2.1.A.7	15A NCAC 02Q .0308(a), 02Q .0309(b)

1. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

a. Emissions of sulfur dioxide from these sources **(ID Nos. CD-Flare1 and CD-Flare2)** shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

Testing [15A NCAC 2Q. 0508(f)]

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 Section 2.1 A.1.a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0516.

Monitoring/Recordkeeping/Reporting [15A NCAC 02Q. 0508(f)]

c. No monitoring, recordkeeping, or reporting is required for sulfur dioxide emissions from the firing of landfill gas in these sources **(ID Nos. CD-Flare1 and CD-Flare2)**.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

a. Visible emissions from these sources **(ID Nos. CD-Flare1 and CD-Flare2)** shall not be more than 20 percent opacity each when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity.

Testing [15A NCAC 02Q .0508(f)]

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 Section 2.1 A.2.a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0521.

Monitoring/Recordkeeping/Reporting [15A NCAC 02Q .0508(f)]

c. No monitoring, recordkeeping, or reporting is required for visible emissions from the firing of landfill gas in these sources **(ID Nos. CD-Flare1 and CD-Flare2)**.

3. 15A NCAC 02D .1111: MAXIMUM ACHIVABLE CONTROL TECHNOLOGY

a. For all sources located at this facility, the Permittee shall comply with all applicable provisions contained in Environmental Management Commission Standard 15A NCAC 02D .1111, "Maximum Achievable Control Technology" (MACT) as promulgated in 40 CFR Part 63, Subpart AAAA "National Emission Standards for Municipal Solid Waste Landfills", including Subpart A, "General Provisions."

b. Any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions that have already been approved under 40 CFR 60, Subpart WWW; Subpart XXX; a federal plan; or an EPA-approved and effective state or tribal plan, can be used to comply with this subpart. The collection and control system design plan may include for approval, collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions, as provided in 40 CFR 63.1981(d)(2). [40 CFR 63.1955(a)]

c. The Permittee shall meet the requirements of this subpart. The requirements of this subpart apply at all times, including during periods of Startup, Shutdown and Malfunction (SSM). The SSM requirements of the General Provisions 40 CFR Part 63 do not apply. [40 CFR 63.1930(b)]

d. At all times, the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if the requirements of this subpart have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the DAQ which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.1955(c)]

e. Compliance is determined using performance testing, collection system monitoring, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data collected under Section 2.1 A.3.s.i below are used to demonstrate compliance with the operating standards for control systems. If a deviation occurs, the Permittee will have failed to meet the control device operating standards and will have deviated from the requirements of this subpart. [40 CFR 63.1964]

The SSM provisions of 40 CFR 63.6(e) do not apply. Compliance with the emissions standards and the operating standards of Section 2.1 A.3.k.i through 2.1 A.3.k.vii below is required at all times.

f. The Permittee is no longer required to comply with the requirements of this subpart when the collection and control system removal criteria in Section 2.1 A.3.j below are met. [40 CFR 63.1950]

Requirements for Gas Collection and Control System Installation and Removal
[40 CFR 63.1957, and 63.1959]

g. The facility's collection and control system that captures the gas generated within the landfill shall meet the following requirements:
   i. Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system equipment;
   ii. Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of

(A) 5 years or more if active; or
(B) 2 years or more if closed or at final grade.

iii. Collect gas at a sufficient extraction rate; and
iv. Be designed to minimize off-site migration of subsurface gas.

h. The Permittee shall collect gas from the landfill **(ID No. ES-01)** to a control system **(ID No. CD-GCCS1)** that routes all the collected gas to a control system that complies with the requirements in one of the following:
   i. The landfill gas-fired flares **(ID Nos. CD-Flare1 and CD-Flare2)** designed and operated in accordance with the parameters established in 40 CFR 63.11(b) except as noted in 40 CFR 63.1959(f); or
   ii. A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at 3-percent oxygen. The operating parameters to be monitored are specified in 40 CFR 63.1959(d).
   iii. Route the collected gas to the treatment system that processes the collected gas for subsequent sale or beneficial use. The Permittee shall not vent treated landfill gas to the ambient air. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to Section 2.1 A.3.h.i or ii above.

i. The Permittee shall operate the collection and control device in accordance with the provisions of 40 CFR 63.1958, 63.1960, and 63.1961.

j. The collection and control system may be capped, removed, or decommissioned if the following criteria are met:
   i. The landfill is a closed landfill. Closed landfill means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under 40 CFR 63.9(b). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed. A closure report shall be submitted to the DAQ as provided in Section 2.1 A.3.ii below;
   ii. The gas collection and control system has been in operation a minimum of 15 years, or the Permittee demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flow; and
   iii. Following the procedures specified in 40 CFR 63.1959(c), the calculated NMOC emission rate at the landfill is less than 50 Mg/yr on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

Operational Standards for Collection and Control Systems [40 CFR 63.1958]

k. The Permittee shall operate the collection and control system **(ID No. GCCS1)** in accordance with the following standards:
   i. Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for 5 years or more if active, or 2 years or more if closed or at final grade.
   ii. Operate the collection system with negative pressure at each wellhead except under the following conditions:
      (A) A fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the semi-annual reports as provided in Section 2.1 A.3.gg below;
      (B) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan;
      (C) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes must be approved by the DAQ.
   iii. Operate each interior wellhead in the collection system with a landfill gas temperature less than 62.8 °C (145 °F). The Permittee may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to the DAQ Regional Office for approval and must include supporting data demonstrating that the elevated parameter neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved.
   iv. Operate the collection system so that the methane concentration is less than 500 parts per million (ppm) above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from

the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(A) The Permittee shall:

(1) Conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications of Section 2.1 A.3.o below.

(2) Conduct surface testing at all cover penetrations. The Permittee shall monitor any cover penetrations that are within an area of the landfill where waste has been placed and a gas collection system is required.

(3) Determine the latitude and longitude coordinates of each exceedance using an instrument with an accuracy of at least 4 meters. The coordinates shall be in decimal degrees with at least five decimal places.

v. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with Section 2.1 A.3.h above. In the event the collection or control system is not operating:

(A) The gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within 1 hour of the collection or control system not operating; and

(B) Efforts to repair the collection or control system shall be initiated and completed in a manner such that downtime is kept to a minimum, and the collection and control system shall be returned to operation.

vi. Operate the control system at all times when the collected gas is routed to the system.

vii. If monitoring demonstrates that the operational requirements in Section 2.1 A.3.k.ii, iii, or iv above are not met, corrective action shall be taken as specified in Section 2.1 A.3.l.iii and 2.1 A.3.l.v, or 2.1 A.3.n below. If corrective actions are taken as specified in Section 2.1 A.3.l through p below, the monitored exceedance is not a deviation of the operational requirements in this section.

Compliance Provisions [40 CFR 63.1960]

l. Unless the facility's collection and control system design includes any alternatives to the monitoring provisions approved by DAQ as provided in 40 CFR 63.1981(d)(2), the following methods shall be used to determine whether the gas collection system is in compliance with Section 2.1 A.3.g above:

i. For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Section 2.1 A.3.g.i above, the following equation shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by the DAQ. If k has been determined by Tier 3 testing as specified in 40 CFR 63.1959(a)(4), the value of k determined from the test must be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(A) For sites with known year-to-year solid waste acceptance rate:

$$Q_m = \sum_{i=1}^{n} 2kL_oM_i\left(e^{-kt_i}\right)$$

Where: Q_m = maximum expected gas generation flow rate, cubic meters per year
k = methane generation rate constant, $year^{-1}$
L_o = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the i^{th} section, megagrams
t_i = age of the i^{th} section, years

(B) The Permittee may use actual flow data to project the maximum expected gas generation flow rate instead of, or in conjunction with, the above equation. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equation above or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

ii. For the purposes of determining sufficient density of gas collectors for compliance with Section 2.1 A.3.g.ii above, the Permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the DAQ, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

iii. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with Section 2.1 A.3.g.iii above, the Permittee shall measure gauge pressure in the gas collection

header applied to each individual well monthly. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the DAQ for approval. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 days, except for the three conditions allowed under Section 2.1 A.3.k.ii above.

(A) If negative pressure cannot be achieved without excess air infiltration within 15 days of the first measurement of positive pressure, the Permittee shall conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured.

(B) If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the Permittee shall also conduct a corrective action analysis and develop an implementation schedule to complete the corrective actions as soon as practicable, but no more than 120 days following the positive pressure measurement.

(C) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the Permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the DAQ, according to Section 2.1 A.3.kk below.

iv. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature. If a well exceeds the operating parameter for temperature as provided in Section 2.1 A.3.k.iii above, action shall be initiated to correct the exceedance within 5 days. Any attempted corrective measure shall not cause exceedances of other operational or performance standards.

(A) If a landfill gas temperature less than or equal to 62.8 °C (145 °F) cannot be achieved within 15 days of the first measurement of landfill gas temperature greater than 62.8 °C (145 °F), the Permittee shall conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 62.8 °C (145 °F) was first measured.

(B) If corrective actions cannot be fully implemented within 60 days following the temperature measurement for which the root cause analysis was required, the Permittee shall also conduct a corrective action analysis and develop an implementation schedule to complete the corrective actions as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 62.8 °C (145 °F).

(C) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the Permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the DAQ, according to Section 2.1 A.3.gg.vii and 2.1 A.3.kk below.

(D) If a landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 76.7 °C (170 °F) and the carbon monoxide concentration measured, according to the procedures in Section 2.1 A.3.r.iv.(F) below is greater than or equal to 1,000 ppmv the corrective actions for the wellhead temperature standard (62.8 °C or 145 °F) shall be completed within 15 days.

v. When seeking to demonstrate compliance with Section 2.1 A.3.g.iv above, through the use of a collection system not conforming to the specifications provided in 40 CFR 63.1962, the Permittee shall provide information satisfactory to the DAQ as specified in 40 CFR 63.1981(c)(3) demonstrating that off-site migration is being controlled.

m. For purposes of compliance with Section 2.1 A.3.k.i above, the Permittee shall place each well or design component as specified in the approved design plan. Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

i. 5 years or more if active; or

ii. 2 years or more if closed or at final grade.

n. The following procedures shall be used for compliance with the surface methane operational standard as provided in Section 2.1 A.3.k.iv above:

i. The Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Section 2.1 A.3.o below.

ii. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

iii. Surface emission monitoring shall be performed in accordance with section 8.3.1 of EPA Method 21 of appendix A-7 of part 60, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

iv. Any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified in Section 2.1 A.3.n.iv.(A) through (E) below shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Section 2.1 A.3.k.iv above.

(A) The location of each monitored exceedance shall be marked and the location and concentration recorded.

The location shall be recorded using an instrument with an accuracy of at least 4 meters. The coordinates shall be in decimal degrees with at least five decimal places.

(B) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 days of detecting the exceedance.

(C) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in Section 2.1 A.3.n.iv.(E) below shall be taken, and no further monitoring of that location is required until the action specified in Section 2.1 A.3.n.iv.(E) below has been taken.

(D) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in Section 2.1 A.3.n.iv.(B) or (C) above, shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 ppm above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in Section 2.1 A.3.n.iv.(C) or (E) above, shall be taken.

(E) For any location where monitored methane concentration equals or exceeds 500 ppm above background three times within a quarterly period, a new well or other collection device shall be installed within 120 days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the DAQ for approval.

v. The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

o. The Permittee shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
   i. The portable analyzer shall meet the instrument specifications provided in section 6 of EPA Method 21 of appendix A of part 60, except that "methane" replaces all references to "VOC".
   ii. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air.
   iii. To meet the performance evaluation requirements in section 8.1 of EPA Method 21 of appendix A of part 60, the instrument evaluation procedures of section 8.1 of EPA Method 21 of appendix A of part 60 shall be used.
   iv. The calibration procedures provided in sections 8 and 10 of EPA Method 21 of appendix A of part 60 shall be followed immediately before commencing a surface monitoring survey.

p. The provisions of this subpart apply at all times, including periods of SSM. During periods of SSM, the Permittee shall comply with the work practice requirement specified in Section 2.1 A.3.k.v above in lieu of the compliance provisions in Section 2.1 A.3.l through o above.

Test Methods and Procedures [15A NCAC 02D .1111, 40 CFR 63.1959]

q. When testing is required, the testing shall be performed in accordance with 40 CFR 63.1959 and General Condition JJ. Additionally, the Permittee shall submit results of performance tests to the EPA following the procedures specified in Section 2.1 A.3.mm.i.
The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1111 if these requirements are not met.

Monitoring [15A NCAC 2Q .0508(f), 40 CFR 63.1961]

r. Unless the facility's collection and control system design includes any alternatives to the monitoring provisions approved by the DAQ as provided in 40 CFR 63.1981(d)(2), the facility must meet the monitoring requirements as described in paragraphs r through w below. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1111 if these monitoring requirements are not met. The Permittee shall monitor the following parameters at each wellhead:
   i. Measure the gauge pressure in the gas collection header on a monthly basis as provided in Section 2.1 A.3.l.iii above; and
   ii. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:
      (A) The nitrogen level shall be determined using EPA Method 3C, unless an alternative test method is established as allowed by 40 CFR 63.1981(d)(2).
      (B) Unless an alternative test method is established as allowed by 40 CFR 63.1981(d)(2), the oxygen level shall be determined by an oxygen meter using EPA Method 3A or 3C or ASTM D6522-11 (if sample location is prior to combustion) except that:
         (1) The span shall be set between 10 and 12 percent oxygen;
         (2) A data recorder is not required;

(3) Only two calibration gases are required, a zero and span;
(4) A calibration error check is not required; and
(5) The allowable sample bias, zero drift, and calibration drift are ±10 percent.

(C) A portable gas composition analyzer may be used to monitor the oxygen levels provided:
(1) The analyzer is calibrated; and
(2) The analyzer meets all quality assurance and quality control requirements for EPA Method 3A or ASTM D6522-11.

iii. The Permittee shall monitor the temperature of the landfill gas on a monthly basis as provided in Section 2.1 A.3.l.iv below. The temperature measuring device must be calibrated annually using the procedure in Section 10.3 of EPA Method 2. Keep records specified in Section 2.1 A.3.bb.

iv. Unless a higher operating temperature value has been approved by the DAQ, the Permittee shall initiate enhanced monitoring at each well with a measurement of landfill gas temperature greater than 62.8 °C (145 °F) as follows:
(A) Visual observations for subsurface oxidation events (smoke, smoldering ash, damage to well) within the radius of influence of the well.
(B) Monitor oxygen concentration as provided in Section 2.1 A.3.r.ii above.
(C) Monitor temperature of the landfill gas at the wellhead as provided in Section 2.1 A.3.r.iii above.
(D) Monitor temperature of the landfill gas every 10 vertical feet of the well as provided in Section 2.1 A.3.r.v below.
(E) Monitor the methane concentration with a methane meter using EPA Method 3C, EPA Method 18, or a portable gas composition analyzer to monitor the methane levels provided that the analyzer is calibrated and the analyzer meets all quality assurance and quality control requirements for EPA Method 3C or EPA Method 18.
(F) Monitor and determine carbon monoxide concentrations, as follows:
(1) Collect the sample from the wellhead sampling port in a passivated canister or multi-layer foil gas sampling bag (such as the Cali-5-Bond Bag) and analyze that sample using EPA Method 10 of 40 CFR 60, Appendix A-4, or an equivalent method with a detection limit of at least 100 ppmv of carbon monoxide in high concentrations of methane; or
(2) Collect and analyze the sample from the wellhead using EPA Method 10 of 40 CFR 60, Appendix A-4, to measure carbon monoxide concentrations.
(3) When sampling directly from the wellhead, the Permittee shall sample for 5 minutes plus twice the response time of the analyzer. These values shall be recorded. The five 1-minute averages are then averaged to give the carbon monoxide reading at the wellhead.
(4) When collecting samples in a passivated canister or multi-layer foil sampling bag, the Permittee shall sample for the period of time needed to assure that enough sample is collected to provide 5 consecutive, 1-minute samples during the analysis of the canister or bag contents, but no less than 5 minutes plus twice the response time of the analyzer. When analyzing canister or bag samples, the analysis will continue until a minimum of 5 consecutive, 1-minute averages recorded by the data acquisition system differ by no more than 7 ppm. The 5 consecutive, 1- minute averages are then averaged together to give a carbon monoxide value from the wellhead.
(G) The enhanced monitoring shall begin 7 days after the first measurement of landfill gas temperature greater than 62.8 °C (145 °F); and
(H) The enhanced monitoring shall be conducted on a weekly basis. If four consecutive weekly carbon monoxide readings are under 100 ppmv, then enhanced monitoring may be decreased to monthly. However, if carbon monoxide readings exceed 100 ppmv again, the Permittee shall return to weekly monitoring.
(I) The enhanced monitoring can be stopped once a higher operating value is approved, at which time the monitoring provisions issued with the higher operating value shall be followed, or once the measurement of landfill gas temperature at the wellhead is less than or equal to 62.8 °C (145 °F).

v. For each wellhead with a measurement of landfill gas temperature greater than or equal to 73.9 °C (165 °F), annually monitor temperature of the landfill gas every 10 vertical feet of the well. This temperature can be monitored either with a removable thermometer, or using temporary or permanent thermocouples installed in the well.

s. The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment when using open flares **(ID Nos. CD-Flare1 and CD-Flare2)**:
i. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame; and
ii. A device that records flow to the flare and bypass of the flare (if applicable). The Permittee shall:

(A) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
(B) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

t. The Permittee shall maintain and operate all monitoring systems associated with the treatment system according to the site-specific treatment system monitoring plan required in Section 2.1 A.3.y.iii.(B) below, and shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment when using a landfill gas treatment system:
   i. A device that records flow to and bypass of the treatment system (if applicable). The Permittee shall:
      (A) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and
      (B) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

u. When seeking to install a collection system that does <u>not meet</u> the active collection system specifications in 40 CFR 63.1962 or seeking to monitor alternative parameters to those required by 40 CFR 63.1958 through 40 CFR 63.1961 the Permittee shall provide information satisfactory to the DAQ as provided in 40 CFR 63.1981(d)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The DAQ may specify additional appropriate monitoring procedures. The following alternative parameters and operating procedures have been approved:
   i. The landfill may shut down a wellhead or consider a wellhead a non-MACT wellhead if the collector is equipped with more than one wellhead. As long as landfill gas extraction is continued in compliance with the MACT standards, this landfill may do so, and shall document any shut-down wellheads in the semi-annual reports.
   ii. Operate the collection and control system with a pressure at each wellhead of up to 5 inches of water column in areas that have a geomembrane or synthetic cover. [40 CFR 63.1958(b)(2)]
   iii. After approval of a written request made to the Regional Office, the landfill may exclude surface monitoring of dangerous areas [40 CFR 63.1958(d)(1)]. When the landfill deviates from the surface monitoring route in the design plan due to the dangerous area, the deviation shall be documented in the semi-annual reports.

v. The Permittee shall monitor surface concentrations of methane according to the procedures in Section 2.1 A.3.n and the instrument specifications in Section 2.1 A.3.o above.
   i. The Permittee shall determine the latitude and longitude coordinates for the location of each exceedance using an instrument with an accuracy of at least 4 meters and the coordinates must be in decimal degrees with at least five decimal places. In the semi-annual report in Section 2.1 A.3.gg.v, the Permittee shall report the location of each exceedance of the 500-ppm methane concentration as provided in Section 2.1 A.3.k.iv above and the concentration recorded at each location for which an exceedance was recorded in the previous month. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

w. The monitoring requirements of Section 2.1 A.3.r, Section 2.1 A.3.s, and Section 2.1 A.3.t above, apply at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities.
   i. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions.
   ii. The Permittee shall complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.
   iii. The temperature and pressure operational standards in Section 2.1 A.3.k.iii, Section 2.1 A.3.k.iv, and Section 2.1 A.3.k.v above, apply at all times.

<u>Recordkeeping</u> [15A NCAC 2Q .0508(f), 40 CFR 63.1983]

x. Unless the facility's collection and control system design includes any alternatives to the recordkeeping provisions approved by the DAQ as provided in 40 CFR 63.1981(d)(2), the facility must meet the recordkeeping requirements in Table 1 of 40 CFR 63, Subpart AAAA as well as those described in paragraphs x through ee below. The

Permittee shall be deemed in noncompliance with 15A NCAC 02D .1111 if these recordkeeping requirements are not met. The Permittee shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report that triggered the standard of 2.5 million megagrams and 2.5 million cubic meters, the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

y. The Permittee shall keep up-to-date, readily accessible records for the life of the control system equipment of the data listed below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.
   i. In order to demonstrate compliance with Section 2.1 A.3.g above:
      (A) The maximum expected gas generation flow rate as calculated in Section 2.1 A.3.l.i above.
      (B) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 63.1962(a)(1) and (2).
   ii. In order to demonstrate compliance with Section 2.1 A.3.h.i above, through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 63.11; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent.
   iii. In order to demonstrate compliance with Section 2.1 A.3.h.iii above, through use of a landfill gas treatment system:
      (A) Records of the flow of landfill gas to, and bypass of, the treatment system.
      (B) The Permittee shall prepare a site-specific treatment monitoring plan to include:
         (1) Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.
         (2) Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.
         (3) Documentation of the monitoring methods and ranges, along with justification for their use.
         (4) List of responsible staff (by job title) for data collection.
         (5) Processes and methods used to collect the necessary data; and
         (6) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

z. The Permittee shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Section 2.1 A.3.r through Section 2.1 A.3.w above, as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
   i. The Permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control system and the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under Section 2.1 A.3.s.ii.(B) and Section 2.1 A.3.t.i.(B) above.
   ii. When using an open flare, the Permittee shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under Section 2.1 A.3.s above, and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.
   iii. The Permittee shall keep records of periods when the collection system or control device is not operating.
   iv. In order to demonstrate compliance with the operational standard in Section 2.1 A.3.k.v above, the Permittee shall keep records of the date, time, and duration of each startup and/or shutdown period, recording the periods when the affected source was subject to the standard applicable to startup and shutdown.
   v. In order to demonstrate compliance with the operational standard in Section 2.1 A.3.k.v above, in the event that an affected unit fails to meet an applicable standard, the Permittee shall keep records of the following information:
      (A) For each failure; record the date, time and duration of each failure and the cause of such events (including unknown cause, if applicable).
      (B) For each failure to meet an applicable standard; record and retain a list of the affected sources or equipment.
      (C) Record actions taken to minimize emissions in accordance with the general duty of Section 2.1 A.3.d above

and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

viii. In lieu of the requirements specified in 40 CFR 63.8(d)(3) of Subpart A, the Permittee shall keep the written procedures required by 40 CFR 63.8(d)(2) on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the DAQ. If the performance evaluation plan is revised, the Permittee shall keep previous (*i.e.,* superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the DAQ, for a period of 5 years after each revision to the plan. The program of corrective action shall be included in the plan required under 40 CFR 63.8(d)(2).

aa. The Permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
   i. The Permittee shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under Section 2.1 A.3.m above.
   ii. The Permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 63.1962(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in 40 CFR 63.1962(a)(3)(ii).

bb. The Permittee shall keep for at least 5 years up-to-date, readily accessible records of the following:
   i. All collection and control system exceedances of the operational standards in Section 2.1 A.3.k.i through Section 2.1 A.3.k.vii above, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
   ii. The Permittee shall keep records of each wellhead temperature monitoring value of greater than 62.8 °C (145 °F).
      (A) The Permittee, when required to conduct the enhanced monitoring provisions in Section 2.1 A.3.r.iv above, shall keep records of all enhanced monitoring activities.
      (B) The Permittee, when required to submit the 24-hour high temperature report in Section 2.1 A.3.ll below, shall keep a record of the email transmission.
   iii. For any root cause analysis for which corrective actions are required in Section 2.1 A.3.l.iii.(A)(1) or Section 2.1 A.3.l.iv.(A)(1) above, keep a record of the root cause analysis conducted, including a description of the recommended corrective actions taken, and the dates the corrective actions were completed.
   iv. For any root cause analysis for which corrective actions are required in Section 2.1 A.3.l.iii.(A)(2) or Section 2.1 A.3.l.iv.(A)(2) above, keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective actions already completed following the positive pressure reading or high temperature reading, and, for actions not already completed, a schedule for implementation, including proposed commencement and completion dates.
   v. For any root cause analysis for which corrective actions are required in Section 2.1 A.3.l.iii.(A)(3) or Section 2.1 A.3.l.iv.(A)(3) above, keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective actions already completed following the positive pressure reading or high temperature reading, for actions not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the DAQ.

cc. The Permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system monitoring data for parameters measured in Section 2.1 A.3.r.i through Section 2.1 A.3.r.iv above.

dd. To demonstrate compliance with the operational standard for temperature in Section 2.1 A.3.k.iii above, the Permittee shall keep the following records.
   i. Records of the landfill gas temperature on a monthly basis as monitored in Section 2.1 A.3.l.iv above.
   ii. Records of enhanced monitoring data at each well with a measurement of landfill gas temperature greater than 62.8 °C (145 °F) as gathered in Section 2.1 A.3.r.iv and Section 2.1 A.3.r.v above.

ee. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to the DAQ or the EPA as part of an on-site compliance evaluation.

Reporting [15A NCAC 2Q .0508(f), 40 CFR 63.1981]

ff. The Permittee shall submit the reports specified in this section and the reports specified in Table 1 to this subpart. Previously submitted initial design capacity reports, amended design capacity reports, initial NMOC emission rate reports, initial or revised collection and control system design plans, closure reports, equipment removal reports, or initial performance test reports submitted under 40 CFR 60, Subpart WWW; 40 CFR 60, Subpart XXX; or a federal plan or EPA-approved and effective state plan or tribal plan that implements either 40 CFR 60, Subpart Cc or 40

CFR 60, Subpart Cf, constitute compliance with the corresponding reporting requirements of this section. The Permittee does not need to re-submit the reports, however:

i. Permittee shall include a statement certifying prior submission of the respective reports and the date of submittal in the first semi-annual report required in this section.

gg. The Permittee shall submit to DAQ semi-annual reports of the recorded information listed below. The Permittee shall submit the report, following the procedure specified in Section 2.1 A.3.mm below:

i. Number of times that applicable parameters monitored under Section 2.1 A.3.k.ii, A.3.k.iii, and Section 2.1 A.3.k.iv above were exceeded and when the gas collection and control system was not operating under Section 2.1 A.3.k.v above, including periods of SSM. For each instance, report the date, time, and duration of each exceedance.

(A) To demonstrate compliance with the operational standard for temperature in Section 2.1 A.3.k.iii above, the Permittee shall provide a statement of the wellhead operational standard for temperature and oxygen being complied with for the period covered by the report. Indicate the number of times each of those parameters monitored under Section 2.1 A.3.r.iii above were exceeded. For each instance, report the date, time, and duration of each exceedance.

(B) The number of times the parameters for the site-specific treatment system in Section 2.1 A.3.t above were exceeded.

ii. Description and duration of all periods when the gas stream was diverted from the control device or treatment system through a bypass line or the indication of bypass flow as specified under Section 2.1 A.3.r through Section 2.1 A.3.w above.

iii. Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating.

iv. All periods when the collection system was not operating.

v. The location of each exceedance of the 500-ppm methane concentration as provided in Section 2.1 A.3.k.iv above and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, record the latitude and longitude coordinates of each exceedance using an instrument with an accuracy of at least 4 meters. The coordinates shall be in decimal degrees with at least five decimal places.

vi. The date of installation and the location of each well or collection system expansion added pursuant to Section 2.1 A.3.l.iii and iv, 2.1 A.3.m, and 2.1 A.3.n.iv above.

vii. For any corrective action analysis for which corrective actions are required in Section 2.1 A.3.l.iii.(A) or Section 2.1 A.3.i.v above and that take more than 60 days to correct the exceedance, the root cause analysis conducted, including a description of the recommended corrective actions, the date for corrective actions already completed following the positive pressure or high temperature reading, and, for actions not already completed, a schedule for implementation, including proposed commencement and completion dates.

viii. When required to conduct enhanced monitoring in Section 2.1 A.3.r.iv or Section 2.1 A.3.r.v above, the Permittee shall include the results of all monitoring activities conducted during the period.

(A) For each monitoring point, report the date, time, and well identifier along with the value and units of measure for oxygen, temperature (wellhead and downwell), methane, and carbon monoxide.

(B) Include a summary trend analysis for each well subject to the enhanced monitoring requirements to chart the weekly readings over time for oxygen, wellhead temperature, methane, and weekly or monthly readings over time, as applicable for carbon monoxide.

(C) Include the date, time, staff person name, and description of findings for each visual observation for subsurface oxidation event.

ix. Summary of all DAQ approved well closures that have been decommissioned in accordance with Section 2.1 A.3.k.ii(C) above.

x. Summary of all DAQ approved nonproductive areas of the landfill in accordance with 40 CFR 63.1962(a)(3)(ii).

xi. Summary of all shut down wellheads and deviations from the approved surface monitoring route as listed in Section 2.1 A.3.u.i and ii above.

hh. The Permittee shall submit a revised design plan to the DAQ for approval as follows:

i. At least 90 days before expanding operations to an area not covered by the previously approved design plan.

ii. Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted to the DAQ according to 40 CFR 63.1981(d).

ii. The Permittee shall submit a closure report to the DAQ within 30 days of waste acceptance cessation. The DAQ may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the DAQ, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 63.9(b).

jj. The Permittee shall submit an equipment removal report to the DAQ 30 days prior to removal or cessation of operation of the control equipment.
   i. The equipment removal report must contain all of the following items:
      (A) A copy of the closure report submitted in accordance with Section 2.1 A.3.ii above;
      (B) A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired, or information that demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flows. In the equipment removal report, the process units tested, the pollutants tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's Central Data Exchange (CDX); and
      (C) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 Mg or greater of NMOC per year. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports.
   ii. The DAQ may request such additional information as may be necessary to verify that all of the conditions for removal in Section 2.1 A.3.j above, have been met.

kk. The Permittee shall submit the following information regarding corrective actions:
   i. For corrective action that is required according to Section 2.1 A.3.l.iii or Section 2.1 A.3.l.iv above and is not completed within 60 days after the initial exceedance, the Permittee shall submit a notification to the DAQ as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance.
   ii. For corrective action that is required according to Section 2.1 A.3.l.iii or Section 2.1 A.3.l.iv above and is expected to take longer than 120 days after the initial exceedance to complete, The Permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the DAQ as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 62.8 °C (145 °F) or above. The DAQ must approve the plan for corrective action and the corresponding timeline.

ll. If a landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 76.7 °C (170 °F) and the carbon monoxide concentration measured is greater than or equal to 1,000 ppmv, the Permittee shall report the date, time, well identifier, temperature and carbon monoxide reading via email to the DAQ Regional Office within 24 hours of the measurement unless a higher operating temperature value has been approved by the DAQ for the well.

mm. The Permittee shall submit reports electronically according to Section 2.1 A.3.mm.i and ii below:
   i. Within 60 days after the date of completing each performance test required by this subpart, the Permittee shall submit the results of the performance test following the procedures specified in Section 2.1 A.3.mm.i.(A) through (C) below.
      (A) Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test. Submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA's CDX (https://cdx.epa.gov/). The data shall be submitted in a file format generated through the use of the EPA's ERT. Alternatively, the Permittee may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website.
      (B) Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test. The results of the performance test shall be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.
      (C) If the Permittee claims some of the information submitted under 40 CFR 63.1981(a) is Confidential Business Information (CBI), the Permittee shall submit a complete file, including information claimed to be CBI, to the EPA. The file shall be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in Section 2.1 A.3.mm.i.(A) above.
   ii. The Permittee shall submit reports to the EPA via CEDRI. CEDRI can be accessed through the EPA's CDX. The Permittee shall use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file

format consistent with the XML schema listed on the CEDRI website (https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the Permittee shall begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The NMOC emission rate reports, semi-annual reports, and bioreactor 40-percent moisture reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the Permittee shall submit the reports to the Administrator at the appropriate address listed in 40 CFR 63.13.

iii. The Permittee may assert a claim of EPA system outage for failure to comply timely with the reporting requirement. To assert a claim of EPA system outage, the Permittee shall meet the following requirements:
   (A) The Permittee shall have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.
   (B) The outage shall have occurred within the period of time beginning 5 business days prior to the date that the submission is due.
   (C) The outage may be planned or unplanned.
   (D) The Permittee shall submit notification to the DAQ in writing as soon as possible following the date the Permittee first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.
   (E) The Permittee shall provide to the DAQ a written description identifying:
      (1) The dates and times when CDX or CEDRI was accessed and the system was unavailable;
      (2) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;
      (3) Measures taken or to be taken to minimize the delay in reporting; and
      (4) The date by which the Permittee proposes to report, or the date reported if the reporting requirement has already been met at the time of the notification.
   (F) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the DAQ.
   (G) In any circumstance, the report shall be submitted electronically as soon as possible after the outage is resolved.

iv. The Permittee may assert a claim of force majeure for failure to comply timely with the reporting requirement. To assert a claim of force majeure, the Permittee shall meet the following requirements:
   (A) The Permittee may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning 5 business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.,* hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.,* large scale power outage).
   (B) The Permittee shall submit notification to the DAQ in writing as soon as possible following the date the Permittee first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.
   (C) The Permittee shall provide to the DAQ:
      (1) A written description of the force majeure event;
      (2) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;
      (3) Measures taken or to be taken to minimize the delay in reporting; and
      (4) The date by which the Permittee proposes to report, or the date reported if the reporting requirement has already been met at the time of the notification.
   (D) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the DAQ.
   (E) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

nn. The Permittee shall submit a summary report of monitoring and recordkeeping activities given in Section 2.1 A.3.r through 2.1 A.3.ee above postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

4. 40 CFR 62 Subpart OOO - Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014. Scope and delegated authorities [40 CFR 62.16710]

This Subpart establishes emission control requirements and compliance schedules for the control of designated pollutants from certain designated municipal solid waste (MSW) landfills in accordance with section 111(d) of the Clean Air Act and Subpart B of 40 CFR part 60.

Designated facilities [40 CFR 62.16711]

(a) The designated facility to which this subpart applies is each municipal solid waste landfill in each state, protectorate, and portion of Indian country that meets the conditions of paragraphs (a)(1) and (2) of this section, except for landfills exempted by paragraphs (b) and (c) of this section.
  (1) The municipal solid waste landfill commenced construction, reconstruction, or modification on or before July 17, 2014.
  (2) The municipal solid waste landfill has accepted waste at any time since November 8, 1987, or the landfill has additional capacity for future waste deposition.

(b) A municipal solid waste landfill regulated by an EPA-approved and currently effective state or tribal plan implementing 40 CFR 60, subpart Cf, is not subject to the requirements of this subpart.

(c) A municipal solid waste landfill located in a state, locality, or portion of Indian country that submitted a negative declaration letter is not subject to the requirements of this subpart other than the requirements in the definition of design capacity in 40 CFR 62.16730 to recalculate the site-specific density annually and in 40 CFR 62.16724(b) to submit an amended design capacity report in the event that the recalculated design capacity is equal to or greater than 2.5 million megagrams and 2.5 million cubic meters. However, if the existing municipal solid waste landfill already has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, then it is subject to the requirements of this Federal plan.

(d) Physical or operational changes made to an existing MSW landfill solely to comply with an emission guideline implemented by a state or Federal plan are not considered a modification or reconstruction and would not subject an existing MSW landfill to the requirements of 40 CFR 60, subpart XXX. Landfills that commence construction, modification, or reconstruction after July 17, 2014, are subject to 40 CFR part 60, subpart XXX.

(e) For purposes of obtaining an operating permit under Title V of the Clean Air Act, the owner or operator of an MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under 40 CFR part 70 or 40 CFR part 71, unless the landfill is otherwise subject to either 40 CFR part 70 or 40 CFR part 71. For purposes of submitting a timely application for an operating permit under 40 CFR part 70 or 40 CFR part 71, the owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to either 40 CFR part 70 or 71, becomes subject to the requirements of 40 CFR 70.5(a)(1)(i) or 40 CFR 71.5(a)(1)(i) of this chapter 90 days after the effective date of such CAA section 111(d) program approval, even if the design capacity report is submitted earlier.

(f) When an MSW landfill subject to this subpart is closed as defined in this subpart, the owner or operator is no longer subject to the requirement to maintain an operating permit under 40 CFR part 70 or 71 for the landfill if the landfill is not otherwise subject to the requirements of either 40 CFR part 70 or 71 and if either of the following conditions are met:
  (1) The landfill was never subject to the requirement to install and operate a gas collection and control system under 40 CFR 62.16714; or
  (2) The landfill meets the conditions for control system removal specified in 40 CFR 62.16714(f).

(g) When an MSW landfill subject to this subpart is in the closed landfill subcategory, the owner or operator is not subject to the following reports of this subpart, provided the owner or operator submitted these reports under the provisions of 40 CFR part 60, subpart WWW; subpart GGG of this part; or a state plan implementing 40 CFR part 60, subpart Cc, on or before July 17, 2014:
  (1) Initial design capacity report specified in 40 CFR 62.16724(a).
  (2) Initial or subsequent NMOC emission rate report specified in 40 CFR 62.16724(c), provided that the most recent NMOC emission rate report indicated the NMOC emissions were below 50 megagrams per year.
  (3) Collection and control system design plan specified in 40 CFR 62.16724(d).
  (4) Closure report specified in 40 CFR 62.16724(f).
  (5) Equipment removal report specified in 40 CFR 62.16724(g).
  (6) Initial annual report specified in 40 CFR 62.16724(h).
  (7) Initial performance test report in 40 CFR 62.16724(i).

(h) When an MSW landfill subject to this subpart is a legacy controlled landfill, as defined in 40 CFR 62.16730, the

owner or operator is not subject to the following reports of this subpart, provided the owner or operator submitted these reports under 40 CFR part 60, subpart WWW; subpart GGG of this part; or a state plan implementing 40 CFR part 60, subpart Cc on or before June 21, 2021.

(1) Initial design capacity report specified in 40 CFR 62.16724(a).
(2) Initial or subsequent NMOC emission rate report specified in 40 CFR 62.16724(c).
(3) Collection and control system design plan specified in 40 CFR 62.16724(d).
(4) Initial annual report specified in 40 CFR 62.16724(h).
(5) Initial performance test report in 40 CFR 62.16724(i).

Compliance schedule and increments of progress [40 CFR 62.16712]

Planning, awarding of contracts, installing, and starting up MSW landfill air emission collection and control equipment that is capable of meeting the emission standards of 40 CFR 62.16714 must be completed within 30 months after the date an NMOC emission rate report shows NMOC emissions equal or exceed 34 megagrams per year; or within 30 months after the date of the most recent NMOC emission rate report that shows NMOC emissions equal or exceed 34 megagrams per year, if Tier 4 surface emissions monitoring (SEM) shows a surface emission concentration of 500 parts per million methane or greater. Legacy controlled landfills who have not yet reached increment 5 (full compliance) must demonstrate compliance with any remaining increments of progress on this schedule. However, they must use the date of their first report submitted under 40 CFR part 60, subpart WWW, 40 CFR part 62, subpart GGG or a state plan implementing 40 CFR part 60, subpart Cc showing NMOC emissions at or above 50 megagrams. The owner or operator must follow the requirements in paragraphs (a) through (d) of this section.

(a) **Increments of progress.** The owner or operator of a designated facility that has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and a NMOC emission rate greater than or equal to 34 megagrams per year must achieve the increments of progress specified in paragraphs (a)(1) through (5) of this section to install air pollution control devices to meet the emission standards specified in 40 CFR 62.16714(b) and (c) of this subpart. Refer to 40 CFR 62.16730 for a definition of each increment of progress.
   (1) **Submit control plan.** Submit a final control plan (collection and control system design plan) according to the requirements of 40 CFR 62.16724(d).
   (2) **Award contract(s).** Award contract(s) to initiate on-site construction or initiate on-site installation of emission collection and/or control equipment.
   (3) **Initiate on-site construction.** Initiate on-site construction or initiate on-site installation of emission collection and/or control equipment as described in the EPA-approved final control plan.
   (4) **Complete on-site construction.** Complete on-site construction and installation of emission collection and/or control equipment.
   (5) **Achieve final compliance.** Complete construction in accordance with the design specified in the EPA-approved final control plan and connect the landfill gas collection system and air pollution control equipment such that they are fully operating. The initial performance test must be conducted within 180 days after the date the facility is required to achieve final compliance. For a legacy controlled landfill, the initial or most recent performance test conducted to comply with 40 CFR part 60, subpart WWW, subpart GGG of this part, or a state plan implementing 40 CFR part 60, subpart Cc is sufficient for compliance with this part. The test report does not have to be resubmitted.

(b) **Compliance date.** For each designated facility that has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and a NMOC emission rate greater than or equal to 34 megagrams per year (50 megagrams per year for closed landfill subcategory), planning, awarding of contracts, and installation of municipal solid waste landfill air emission collection and control equipment capable of meeting the standards in 40 CFR 62.16714(b) and (c) must be accomplished within 30 months after the date the initial emission rate report (or the annual emission rate report) first shows that the NMOC emission rate equals or exceeds 34 megagrams per year (50 megagrams per year for closed landfill subcategory), except as provided in 40 CFR 62.16712(d).

(c) **Compliance schedules.** The owner or operator of a designated facility that has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and a NMOC emission rate greater than or equal to 34 megagrams per year (50 megagrams per year for closed landfill subcategory) must achieve the increments of progress specified in paragraphs (a)(1) through (5) of this section according to the schedule specified in paragraph (c)(1), (2), or (d) of this section.
   (1) **Achieving Increments of Progress.** The owner or operator of a designated facility must achieve the increments of progress according to the schedule in table 1 of this subpart. Once this subpart becomes effective, any designated facility to which this subpart applies will remain subject to the schedule in table 1 if a subsequently approved state or tribal plan contains a less stringent schedule, (i.e., a schedule that provides more time to comply with increments 1, 4 and/or 5 than does this Federal plan).
   (2) **Tier 4.** The owner or operator of a designated facility that is using the Tier 4 procedures specified in 40 CFR

62.16718(a)(6) must achieve the increments of progress according to the schedule in table 1 of this subpart.

(d) **Alternative dates.** For designated facilities that are subject to the schedule requirements of paragraph (c)(1) of this section, the owner or operator (or the state or tribal air pollution control authority) may submit to the appropriate EPA Regional Office for approval alternative dates for achieving increments 2 and 3.

[86 FR 27770, May 21, 2021, as amended at 87 FR 8203, Feb. 14, 2022]

Standards for municipal solid waste landfill emissions [40 CFR 62.16714]

(a) **Landfills.** Each owner or operator of an MSW landfill having a design capacity greater than or equal to 2.5 million megagrams by mass and 2.5 million cubic meters by volume must collect and control MSW landfill emissions at each MSW landfill that meets the following conditions:
  (1) **Waste acceptance date.** The landfill has accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition.
  (2) **Construction commencement date.** The landfill commenced construction, reconstruction, or modification on or before July 17, 2014.
  (3) **NMOC emission rate.** The landfill has an NMOC emission rate greater than or equal to 34 megagrams per year or Tier 4 SEM shows a surface emission concentration of 500 parts per million methane or greater.
  (4) **Closed subcategory.** The landfill is in the closed landfill subcategory and has an NMOC emission rate greater than or equal to 50 megagrams per year.

(b) **Collection system.** Install a gas collection and control system meeting the requirements in paragraphs (b)(1) through (3) and (c) of this section at each MSW landfill meeting the conditions in paragraph (a) of this section.
  (1) **Collection system.** Install and start up a collection and control system that captures the gas generated within the landfill within 30 months after:
    (i) The first annual report in which the NMOC emission rate equals or exceeds 34 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the NMOC emission rate is less than 34 megagrams per year, as specified in 40 CFR 62.16724(d)(4), or
    (ii) The first annual report in which the NMOC emission rate equals or exceeds 50 megagrams per year submitted under previously applicable regulations 40 CFR part 60, subpart WWW, 40 CFR part 62, subpart GGG, or a state plan implementing 40 CFR part 60, subpart Cc for a legacy controlled landfill or landfill in the closed landfill subcategory, or
    (iii) The most recent NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year based on Tier 2, if the Tier 4 SEM shows a surface methane emission concentration of 500 parts per million methane or greater as specified in 40 CFR 62.16724 (d)(4)(iii).
  (2) **Active.** An active collection system must:
    (i) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system equipment.
    (ii) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active; or 2 years or more if closed or at final grade.
    (iii) Collect gas at a sufficient extraction rate.
    (iv) Be designed to minimize off-site migration of subsurface gas.
  (3) **Passive.** A passive collection system must:
    (i) Comply with the provisions specified in paragraphs (b)(2)(i), (ii), and (iv) of this section.
    (ii) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners must be installed as required under 40 CFR 258.40.

(c) **Control system.** Control the gas collected from within the landfill through the use of control devices meeting the following requirements, except as provided in 40 CFR 60.24.
  (1) A non-enclosed flare designed and operated in accordance with the parameters established in 40 CFR 60.18 except as noted in 40 CFR 62.16722(d); or
  (2) A control system designed and operated to reduce NMOC by 98 weight percent; or when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts-per-million by volume, dry basis as hexane at 3-percent oxygen or less. The reduction efficiency or concentration in parts-per-million by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 40 CFR 62.16718(d). The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with this subpart.
    (i) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.

(ii) The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in 40 CFR 62.16722.

(iii) Legacy controlled landfills or landfills in the closed landfill subcategory that have already installed control systems and completed initial or subsequent performance tests may comply with this subpart using the initial or most recent performance test conducted to comply with 40 CFR part 60, subpart WWW; subpart GGG of this part; or a state plan implementing subpart Cc of part 60, is sufficient for compliance with this subpart.

(3) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (c)(1) or (2) of this section.

(4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (b) or (c) of this section. For purposes of this subpart, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (b) or (c) of this section.

(d) **Design capacity.** Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume must submit an initial design capacity report to the Administrator as provided in 40 CFR 62.16724(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions must be documented and submitted with the report. Submittal of the initial design capacity report fulfills the requirements of this subpart except as provided in paragraphs (d)(1) and (2) of this section.

(1) The owner or operator must submit an amended design capacity report as provided in 40 CFR 62.16724(b).

(2) When an increase in the maximum design capacity of a landfill with an initial design capacity less than 2.5 million megagrams or 2.5 million cubic meters results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator must comply with paragraph (e) of this section.

(e) **Emissions.** The owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must either install a collection and control system as provided in paragraphs (b) and (c) of this section or calculate an initial NMOC emission rate for the landfill using the procedures specified in 40 CFR 62.16718(a). The NMOC emission rate must be recalculated annually, except as provided in 40 CFR 62.16724(c)(3).

(1) If the calculated NMOC emission rate is less than 34 megagrams per year, the owner or operator must:

(i) Submit an annual NMOC emission rate report according to 40 CFR 62.16724(c), except as provided in 40 CFR 62.16724(c)(3); and

(ii) Recalculate the NMOC emission rate annually using the procedures specified in 40 CFR 62.16724(a) until such time as the calculated NMOC emission rate is equal to or greater than 34 megagrams per year, or the landfill is closed.

(A) If the calculated NMOC emission rate, upon initial calculation or annual recalculation required in paragraph (e)(1)(ii) of this section, is equal to or greater than 34 megagrams per year, the owner or operator must either: Comply with paragraphs (b) and (c) of this section; calculate NMOC emissions using the next higher tier in 40 CFR 62.16718; or conduct a surface emission monitoring demonstration using the procedures specified in 40 CFR 62.16718(a)(6).

(B) If the landfill is permanently closed, a closure report must be submitted to the Administrator as provided in 40 CFR 62.16724(f), except for exemption allowed under 40 CFR 62.16711(g)(4).

(2) If the calculated NMOC emission rate is equal to or greater than 34 megagrams per year using Tier 1, 2, or 3 procedures, the owner or operator must either: Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year as specified in 40 CFR 62.16724(d), except for exemptions allowed under 40 CFR 62.16711(g)(3); calculate NMOC emissions using a higher tier in 40 CFR 62.16718; or conduct a surface emission monitoring demonstration using the procedures specified in 40 CFR 62.16718(a)(6).

(3) For the closed landfill subcategory, if the calculated NMOC emission rate submitted under previously applicable regulations 40 CFR part 60, subpart WWW; 40 CFR part 62, subpart GGG; or a state plan implementing 40 CFR part 60, subpart Cc is equal to or greater than 50 megagrams per year using Tier 1, 2, or 3 procedures, the owner or operator must either: submit a collection and control system design plan as specified in 40 CFR 62.16724(d), except for exemptions allowed under 40 CFR 62.16711(g)(3); or calculate NMOC emissions using a higher tier in 40 CFR 62.16718.

(f) **Removal criteria.** The collection and control system may be capped, removed, or decommissioned if the following

criteria are met:

(1) The landfill is a closed landfill (as defined in §62.16730). A closure report must be submitted to the Administrator as provided in 40 CFR 62.16724(f).
(2) The collection and control system has been in operation a minimum of 15 years, or the landfill owner or operator demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flow.
(3) Following the procedures specified in 40 CFR 62.16718(b), the calculated NMOC emission rate at the landfill is less than 34 megagrams per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart.
(4) For the closed landfill subcategory (as defined in 40 CFR 62.16730), following the procedures specified in 40 CFR 62.16718(b), the calculated NMOC emission rate at the landfill is less than 50 megagrams per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart.

[86 FR 27770, May 21, 2021, as amended at 87 FR 8203, Feb. 14, 2022]

Operational standards for collection and control systems [40 CFR 62.16716]

Each owner or operator must comply with the provisions for the operational standards in this section (as well as the provisions in 40 CFR 62.16720 and 40 CFR 62.16722), or the operational standards in 40 CFR 63.1958 of this chapter (as well as the provisions in 40 CFR 63.1960 and 40 CFR 63.1961 of this chapter), or both as alternative means of compliance, for an MSW landfill with a gas collection and control system used to comply with the provisions of 40 CFR 62.16714(b) and (c). Once the owner or operator begins to comply with the provisions of 40 CFR 63.1958 of this chapter, the owner or operator must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section. Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of 40 CFR 62.16714(b) and (c) must:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
  (1) 5 years or more if active; or
  (2) 2 years or more if closed or at final grade;
(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:
  (1) A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in 40 CFR 62.16724(h)(1);
  (2) Use of a geomembrane or synthetic cover. The owner or operator must develop acceptable pressure limits in the design plan;
  (3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes must be approved by the Administrator as specified in 40 CFR 62.16724(d);
(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit). The owner or operator may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to the Administrator for approval and must include supporting data demonstrating that the elevated parameter neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved (i.e., neither causing fires nor killing methanogens is acceptable).
(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator must conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 62.16720(d). The owner or operator must conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan must be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.
(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §62.16714(c). In the event the collection or control system is not operating, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be

closed within 1 hour of the collection or control system not operating.

(f) Operate the control system at all times when the collected gas is routed to the system.

(g) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action must be taken as specified in 40 CFR 62.16720(a)(3) and (5) or 40 CFR 62.16720(c). If corrective actions are taken as specified in 40 CFR 62.16720, the monitored exceedance is not a violation of the operational requirements in this section.

Test methods and procedures [40 CFR 62.16718]

Calculate the landfill NMOC emission rate and conduct a surface emission monitoring demonstration according to the provisions in this section.

(a)

(1) **NMOC Emission rate.** The landfill owner or operator must calculate the NMOC emission rate using either Equation 1 provided in paragraph (a)(1)(i) of this section or Equation 2 provided in paragraph (a)(1)(ii) of this section. Both Equation 1 and Equation 2 may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i) of this section, for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii) of this section, for part of the life of the landfill. The values to be used in both Equation 1 and Equation 2 are 0.05 per year for k, 170 cubic meters per megagram for Lo, and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a 30-year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorological site, the k value to be used is 0.02 per year.

(i)

(A) Equation 1 must be used if the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^{n} 2\ k\ L_o M_i (e^{-kt_i})(C_{NMOC})(3.6\times10^{-9}) \quad \text{(Eq. 1)}$$

Where:
M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year.
k = Methane generation rate constant, $year^{-1}$.
L_o = Methane generation potential, cubic meters per megagram solid waste.
M_i = Mass of solid waste in the i^{th} section, megagrams.
t_i = Age of the i^{th} section, years.
C_{NMOC} = Concentration of NMOC, parts per million by volume as hexane.
3.6×10^{-9} = Conversion factor.

(B) The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

(ii)

(A) Equation 2 must be used if the actual year-to-year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_o R\ (e^{-kc} - e^{-kt})\ C_{NMOC}(3.6\times10^{-9}) \quad \text{(Eq. 2)}$$

Where:
M_{NMOC} = Mass emission rate of NMOC, megagrams per year.
L_o = Methane generation potential, cubic meters per megagram solid waste.
R = Average annual acceptance rate, megagrams per year.
k = Methane generation rate constant, $year^{-1}$.
t = Age of landfill, years.
C_{NMOC} = Concentration of NMOC, parts per million by volume as hexane.
c = Time since closure, years; for an active landfill c = 0 and $e^{-kc} = 1$.
3.6×10^{-9} = Conversion factor.

(B) The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R, if documentation of the nature and

amount of such wastes is maintained.

(2) **Tier 1.** The owner or operator must compare the calculated NMOC mass emission rate to the standard of 34 megagrams per year.
   (i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 34 megagrams per year, then the owner or operator must submit an NMOC emission rate report according to 40 CFR 62.16724(c) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 62.16714(e).
   (ii) If the NMOC emission rate calculated in paragraph (a)(1) of this section is equal to or greater than 34 megagrams per year, then the landfill owner or operator must either:
      (A) Submit a gas collection and control system design plan within 1 year as specified in 40 CFR 62.16724(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 62.16714(b) and (c);
      (B) Determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the Tier 2 procedures provided in paragraph (a)(3) of this section; or
      (C) Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the Tier 3 procedures provided in paragraph (a)(4) of this section.

(3) **Tier 2.** The landfill owner or operator must determine the site-specific NMOC concentration using the following sampling procedure. The landfill owner or operator must install at least two sample probes per hectare, evenly distributed over the landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The probes should be evenly distributed across the sample area. The sample probes should be located to avoid known areas of nondegradable solid waste.

The owner or operator must collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using EPA Method 25 or 25C of appendix A-7 of 40 CFR part 60. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If more than the required number of samples is taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from EPA Method 25 or 25C of appendix A-7 of 40 CFR part 60 by 6 to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. If the landfill has an active or passive gas removal system in place, EPA Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probes per hectare requirement. For active collection systems, samples may be collected from the common header pipe. The sample location on the common header pipe must be before any gas moving, condensate removal, or treatment system equipment. For active collection systems, a minimum of three samples must be collected from the header pipe.
   (i) Within 60 days after the date of determining the NMOC concentration and corresponding NMOC emission rate, the owner or operator must submit the results according to 40 CFR 62.16724(j)(2).
   (ii) The landfill owner or operator must recalculate the NMOC mass emission rate using Equation 1 or Equation 2 provided in paragraph (a)(1)(i) or (ii) of this section using the average site-specific NMOC concentration from the collected samples instead of the default value provided in paragraph (a)(1) of this section.
   (iii) If the resulting NMOC mass emission rate is less than 34 megagrams per year, then the owner or operator must submit a periodic estimate of NMOC emissions in an NMOC emission rate report according to 40 CFR 62.16724(c) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 62.16714(e). The site-specific NMOC concentration must be retested every 5 years using the methods specified in this section.
   (iv) If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is equal to or greater than 34 megagrams per year, the owner or operator must either:
      (A) Submit a gas collection and control system design plan within 1 year as specified in 40 CFR 62.16724(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 62.16714(b) and (c);
      (B) Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the Tier 3 procedures specified in paragraph (a)(4) of this section; or
      (C) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in

paragraph (a)(6) of this section.

(4) **Tier 3.** The site-specific methane generation rate constant must be determined using the procedures provided in EPA Method 2E of appendix A-1 of 40 CFR part 60. The landfill owner or operator must estimate the NMOC mass emission rate using Equation 1 or Equation 2 in paragraph (a)(1)(i) or (ii) of this section and using a site-specific methane generation rate constant, and the site-specific NMOC concentration as determined in paragraph (a)(3) of this section instead of the default values provided in paragraph (a)(1) of this section. The landfill owner or operator must compare the resulting NMOC mass emission rate to the standard of 34 megagrams per year.

(i) If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration and Tier 3 site-specific methane generation rate is equal to or greater than 34 megagrams per year, the owner or operator must either:

(A) Submit a gas collection and control system design plan within 1 year as specified in 40 CFR 62.16724(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 62.16714(b) and (c); or

(B) Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in paragraph (a)(6) of this section.

(ii) If the NMOC mass emission rate is less than 34 megagrams per year, then the owner or operator must recalculate the NMOC mass emission rate annually using Equation 1 or Equation 2 in paragraph (a)(1) of this section and using the site-specific Tier 2 NMOC concentration and Tier 3 methane generation rate constant and submit a periodic NMOC emission rate report as provided in 40 CFR 62.16724(c). The calculation of the methane generation rate constant is performed only once, and the value obtained from this test must be used in all subsequent annual NMOC emission rate calculations.

(5) **Alternative methods.** The owner or operator may use other methods to determine the NMOC concentration or a site-specific methane generation rate constant as an alternative to the methods required in paragraphs (a)(3) and (4) of this section if the method has been approved by the Administrator.

(6) **Tier 4.** Demonstrate that surface methane emissions are below 500 parts per million. Surface emission monitoring must be conducted on a quarterly basis using the following procedures. Tier 4 is allowed only if the landfill owner or operator can demonstrate that NMOC emissions are greater than or equal to 34 megagrams per year but less than 50 megagrams per year using Tier 1 or Tier 2. If both Tier 1 and Tier 2 indicate NMOC emissions are megagrams per year or greater, then Tier 4 cannot be used. In addition, the landfill must meet the criteria in paragraph (a)(6)(viii) of this section.

(i) Measure surface concentrations of methane along the entire perimeter of the landfill and along a pattern that traverses the landfill at no more than 30-meter intervals using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 62.16720(d).

(ii) The background concentration must be determined by moving the probe inlet upwind and downwind at least 30 meters from the waste mass boundary of the landfill.

(iii) Surface emission monitoring must be performed in accordance with section 8.3.1 of EPA Method 21 of appendix A-7 of 40 CFR part 60, except that the probe inlet must be placed no more than 5 centimeters above the landfill surface; the constant measurement of distance above the surface should be based on a mechanical device such as with a wheel on a pole.

(A) The owner or operator must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM monitor, and must be placed on the ground, to ensure wind turbulence is blocked. The SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

(B) Landfill surface areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, and all cover penetrations must also be monitored using a device meeting the specifications provided in 40 CFR 62.16720(d)

(iv) Each owner or operator seeking to comply with the Tier 4 provisions in paragraph (a)(6) of this section must maintain records of surface emission monitoring as provided in 40 CFR 62.16726(g) and submit a Tier 4 surface emissions report as provided in 40 CFR 62.16724(d)(4)(iii).

(v) If there is any measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must submit a gas collection and control system design plan within 1 year of the first measured concentration of methane of 500 parts per million or greater from the surface of the landfill according to 40 CFR 62.16724(d) and install and operate a gas collection and control system according to 40 CFR 62.16714(b) and (c) within 30 months of the most recent NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year based on Tier 2.

(vi) If after four consecutive quarterly monitoring periods at a landfill, other than a closed landfill, there is no measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must continue quarterly surface emission monitoring using the methods specified in this section.

(vii) If after four consecutive quarterly monitoring periods at a closed landfill there is no measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the owner or operator must conduct annual surface emission monitoring using the methods specified in this section.

(viii) If a landfill has installed and operates a collection and control system that is not required by this subpart, then the collection and control system must meet the following criteria:

(A) The gas collection and control system must have operated for at least 6,570 out of 8,760 hours preceding the Tier 4 SEM demonstration.

(B) During the Tier 4 SEM demonstration, the gas collection and control system must operate as it normally would to collect and control as much landfill gas as possible.

(b) After the installation and startup of a collection and control system in compliance with this subpart, the owner or operator must calculate the NMOC emission rate for purposes of determining when the system can be capped, removed, or decommissioned as provided in 40 CFR 62.16714(f), using Equation 3:

$$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC} \quad \text{(Eq. 3)}$$

Where:
M_{NMOC} = Mass emission rate of NMOC, megagrams per year.
Q_{LFG} = Flow rate of landfill gas, cubic meters per minute.
C_{NMOC} = NMOC concentration, parts per million by volume as hexane.

(1) **Flow rate.** The flow rate of landfill gas, $Q_{LFG,}$ must be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control system using a gas flow measuring device calibrated according to the provisions of section 10 of EPA Method 2E of appendix A-1 of 40 CFR part 60.

(2) **NMOC concentration.** The average NMOC concentration, $C_{NMOC,}$ must be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in EPA Method 25 or EPA Method 25C of appendix A-7 of 40 CFR part 60. The sample location on the common header pipe must be before any condensate removal or other gas refining units.
The landfill owner or operator must divide the NMOC concentration from EPA Method 25 or EPA Method 25C of appendix A-7 of 40 CFR part 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) **Gas flow rate method.** The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

(i) Within 60 days after the date of calculating the NMOC emission rate for purposes of determining when the system can be capped or removed, the owner or operator must submit the results according to 40 CFR 62.16724(j)(2).

(ii) [Reserved]

(c) When calculating emissions for Prevention of Significant Deterioration purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart must estimate the NMOC emission rate for comparison to the Prevention of Significant Deterioration major source and significance levels in 40 CFR 51.166 or 40 CFR 52.21 of this chapter using Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42) or other approved measurement procedures.

(d) For the performance test required in 40 CFR 62.16714(c)(1), the net heating value of the combusted landfill gas as determined in 40 CFR 60.18(f)(3) of this chapter is calculated from the concentration of methane in the landfill gas as measured by EPA Method 3C. A minimum of three 30-minute EPA Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. EPA Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under 40 CFR 60.18(f)(4) of this chapter.

(1) **Performance test results.** Within 60 days after the date of completing each performance test (as defined in §60.8 of this chapter), the owner or operator must submit the results of the performance tests required by paragraph (b) or (d) of this section, including any associated fuel analyses, according to 40 CFR 62.16724(j)(1).

(2) [Reserved]

(e) For the performance test required in §62.16714(c)(2), EPA Method 25 or 25C (EPA Method 25C may be used at the inlet only) of appendix A-7 of 40 CFR part 60 must be used to determine compliance with the 98 weight-percent

efficiency or the 20 parts-per-million by volume outlet NMOC concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by 40 CFR 62.16724(d)(2). EPA Method 3, 3A, or 3C of appendix A-2 of 40 CFR part 60 must be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 parts-per-million NMOC as carbon (8 parts-per-million NMOC as hexane), EPA Method 25A should be used in place of EPA Method 25. EPA Method 18 of appendix A-6 of 40 CFR part 60 may be used in conjunction with EPA Method 25A on a limited basis (compound specific, e.g., methane) or EPA Method 3C may be used to determine methane. The methane as carbon should be subtracted from the EPA Method 25A total hydrocarbon value as carbon to give NMOC concentration as carbon. The landfill owner or operator must divide the NMOC concentration as carbon by 6 to convert the C_{NMOC} as carbon to C_{NMOC} as hexane. Equation 4 must be used to calculate efficiency:

$$\text{Control Efficiency} = (NMOC_{in} - NMOC_{out}) / (NMOC_{in}) \quad \text{(Eq. 4)}$$

Where:
$NMOC_{in}$ = Mass of NMOC entering control device.
$NMOC_{out}$ = Mass of NMOC exiting control device.

(1) **Performance test submission.** Within 60 days after the date of completing each performance test (as defined in§60.8 of this chapter), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, according to 40 CFR 62.16724(j)(1).
(2) [Reserved]

The Permittee shall be deemed in noncompliance with 40 CFR 62 OOO if these test methods and procedures above are not met.

Compliance provisions [40 CFR 62.16720]

Follow the compliance provisions in this section (as well as the provisions in 40 CFR 62.16716 and 40 CFR 62.16722), or the compliance provisions in 40 CFR 63.1960 of this chapter (as well as the provisions in 40 CFR 63.1958 and 40 CFR 63.1961 of this chapter), or both as alternative means of compliance, for an MSW landfill with a gas collection and control system used to comply with the provisions of 40 CFR 62.16714(b) and (c). Once the owner or operator begins to comply with the provisions of 40 CFR 63.1960 of this chapter, the owner or operator must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section.

(a) Except as provided in 40 CFR 62.16724(d)(2), the specified methods in paragraphs (a)(1) through (6) of this section must be used to determine whether the gas collection system is in compliance with 40 CFR 62.16714(b)(2).
  (1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR 62.16714(b)(2)(i), either Equation 5 or Equation 6 must be used. The methane generation rate constant (k) and methane generation potential (Lo) kinetic factors should be those published in the most recent AP-42 or other site-specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in 40 CFR 62.16718(a)(4), the value of k determined from the test must be used. A value of no more than 15 years must be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.
    (i) For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R(e^{-kc} - e^{-kt}) \quad \text{(Eq. 5)}$$

Where:
Q_m = Maximum expected gas generation flow rate, cubic meters per year.
L_o = Methane generation potential, cubic meters per megagram solid waste.
R = Average annual acceptance rate, megagrams per year.
k = Methane generation rate constant, year−1.
t = Age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.
c = Time since closure, years (for an active landfill c = 0 and e^{-kc} = 1).

    (ii) For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2kL_oM_i(e^{-kt_i}) \quad \text{(Eq. 6)}$$

Where:
Q_M = Maximum expected gas generation flow rate, cubic meters per year.
k = Methane generation rate constant, year−1.
L_o = Methane generation potential, cubic meters per megagram solid waste.
M_i = Mass of solid waste in the i^{th} section, megagrams.
t_i = Age of the i^{th} section, years.

(iii) If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, Equation 5 or Equation 6 in paragraphs (a)(1)(i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using Equation 5 or Equation 6 in paragraphs (a)(1)(i) or (ii) of this section or other methods must be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collectors for compliance with 40 CFR 62.16714(b)(2)(ii), the owner or operator must design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 62.16714(b)(2)(iii), the owner or operator must measure gauge pressure in the gas collection header applied to each individual well monthly. If a positive pressure exists, action must be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under 40 CFR 62.16716(b). Any attempted corrective measure must not cause exceedances of other operational or performance standards.

(i) If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but not later than 60 days after positive pressure was first measured. The owner or operator must keep records according to 40 CFR 62.16726(e)(3).

(ii) If corrective actions cannot be fully implemented within 60 days following the positive pressure or elevated temperature measurement for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) or positive pressure.

The owner or operator must submit the items listed in 40 CFR 62.16724(h)(7) as part of the next annual report. The owner or operator must keep records according to 40 CFR 62.16726(e)(4).

(iii) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator, according to 40 CFR 62.16724(h)(7) and (k). The owner or operator must keep records according to 40 CFR 62.16726(e)(5).

(4) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator must monitor each well monthly for temperature as provided in 40 CFR 62.16716(c). If a well exceeds the operating parameter for temperature, action must be initiated to correct the exceedance within 5 calendar days. Any attempted corrective measure must not cause exceedances of other operational or performance standards.

(i) If a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit), the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) was first measured. The owner or operator must keep records according to 40 CFR 62.16726(e)(3).

(ii) If corrective actions cannot be fully implemented within 60 days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit) for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120

days following the measurement of landfill gas temperature greater than 55 degrees Celsius (131 degrees Fahrenheit). The owner or operator must submit the items listed in 40 CFR 62.16724(h)(7) as part of the next annual report. The owner or operator must keep records according to 40 CFR 62.16726(e)(4).

(iii) If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the owner or operator must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator, according to 40 CFR 62.16724(h)(7) and 40 CFR 62.16724(k). The owner or operator must keep records according to 40 CFR 62.16726(e)(5).

(5) An owner or operator seeking to demonstrate compliance with 40 CFR 62.16714(b)(2)(iv) through the use of a collection system not conforming to the specifications provided in 40 CFR 62.16728 must provide information satisfactory to the Administrator as specified in 40 CFR 62.16724(d)(3) demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with 40 CFR 62.16716(a), each owner or operator of a controlled landfill must place each well or design component as specified in the approved design plan as provided in 40 CFR 62.16724(d). Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade.

(c) The following procedures must be used for compliance with the surface methane operational standard as provided in 40 CFR 62.16716(d):

(1) After installation and startup of the gas collection system, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.

(2) The background concentration must be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

(3) Surface emission monitoring must be performed in accordance with section 8.3.1 of EPA Method 21 of appendix A-7 of 40 CFR part 60, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4)(i) through (v) of this section must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 62.16716(d).

(i) The location of each monitored exceedance must be marked, and the location and concentration recorded. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken, and the location must be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (c)(4)(v) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) of this section has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 parts-per-million methane above background at the 10-day re-monitoring specified in paragraph (c)(4)(ii) or (iii) of this section must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 parts-per-million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in paragraph (c)(4)(iii) or (v) of this section must be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts-per-million above background three times within a quarterly period, a new well or other collection device must be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Administrator for approval.

(5) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section or 40 CFR

62.16718(a)(6) must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer must meet the instrument specifications provided in section 6 of EPA Method 21 of appendix A-7 of 40 CFR part 60, except that "methane" replaces all references to "VOC."
(2) The calibration gas must be methane, diluted to a nominal concentration of 500 parts-per-million in air.
(3) To meet the performance evaluation requirements in section 8.1 of EPA Method 21 of appendix A-7 of 40 CFR part 60, the instrument evaluation procedures of section 8.1 of EPA Method 21 of appendix A-7 of 40 CFR part 60 must be used.
(4) The calibration procedures provided in sections 8 and 10 of EPA Method 21 of appendix A-7 of 40 CFR part 60 must be followed immediately before commencing a surface monitoring survey.

(e) The provisions of this subpart apply at all times, including periods of startup, shutdown, or malfunction. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in 40 CFR 62.16716(e) in lieu of the compliance provisions in 40 CFR 62.16720.

The Permittee shall be deemed in noncompliance with 40 CFR 62 OOO if these compliance provisions above are not met.

Monitoring of operations [40 CFR 62.16722]

Follow the monitoring provisions in this section (as well as the provisions in 40 CFR 62.16716 and 40 CFR 62.16720), except as provided in 40 CFR 62.16724(d)(2), or the monitoring provisions in 40 CFR 63.1961 of this chapter (as well as the provisions in 40 CFR 63.1958 and 40 CFR 63.1960 of this chapter), or both as alternative means of compliance, for an MSW landfill with a gas collection and control system used to comply with the provisions of 40 CFR 62.16714(b) and (c). Once the owner or operator begins to comply with the provisions of 40 CFR 63.1961 of this chapter, the owner or operator must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section.

(a) Each owner or operator seeking to comply with 40 CFR 62.16714(b)(2) for an active gas collection system must install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:
  (1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §62.16720(a)(3); and
  (2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as follows:
    (i) The nitrogen level must be determined using EPA Method 3C of appendix A-2 of 40 CFR part 60, unless an alternative test method is established as allowed by 40 CFR 62.16724(d)(2).
    (ii) Unless an alternative test method is established as allowed by 40 CFR 62.16724(d)(2), the oxygen level must be determined by an oxygen meter using EPA Method 3A of appendix A-7 of 40 CFR part 60, EPA Method 3C of appendix A-7 of 40 CFR part 60, or ASTM D6522-11. Determine the oxygen level by an oxygen meter using EPA Method 3A, 3C, or ASTM D6522-11 (if sample location is prior to combustion) except that:
      (A) The span must be set between 10- and 12-percent oxygen;
      (B) A data recorder is not required;
      (C) Only two calibration gases are required, a zero and span;
      (D) A calibration error check is not required;
      (E) The allowable sample bias, zero drift, and calibration drift are ±10 percent.
    (iii) A portable gas composition analyzer may be used to monitor the oxygen levels provided:
      (A) The analyzer is calibrated; and
      (B) The analyzer meets all quality assurance and quality control requirements for EPA Method 3A or ASTM D6522-11.
  (3) Monitor temperature of the landfill gas on a monthly basis as provided in 40 CFR 62.16720(a)(4). The temperature measuring device must be calibrated annually using the procedure in 40 CFR part 60, appendix A-1, EPA Method 2, section 10.3.

(b) Each owner or operator seeking to comply with 40 CFR 62.16714(c) using an enclosed combustor must calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:
  (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.
  (2) A device that records flow to the control device and bypass of the control device (if applicable). The owner or operator must:
    (i) Install, calibrate, and maintain a gas flow rate measuring device that must record the flow to the control

device at least every 15 minutes; and

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) Each owner or operator seeking to comply with 40 CFR 62.16714(c) using a non-enclosed flare must install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2) A device that records flow to the flare and bypass of the flare (if applicable). The owner or operator must:

(i) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) Each owner or operator seeking to demonstrate compliance with 40 CFR 62.16714(c) using a device other than a non-enclosed flare or an enclosed combustor or a treatment system must provide information satisfactory to the Administrator as provided in 40 CFR 62.16724(d)(2) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator must review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in 40 CFR 62.16728 or seeking to monitor alternative parameters to those required by 40 CFR 62.16716 through 40 CFR 62.16722 must provide information satisfactory to the Administrator as provided in 40 CFR 62.16724(d)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with the 500 parts-per-million surface methane operational standard in 40 CFR 62.16716(d) must monitor surface concentrations of methane according to the procedures provided in 40 CFR 62.16720(c) and the instrument specifications in 40 CFR 62.16720(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 parts-per-million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

(g) Each owner or operator seeking to demonstrate compliance with the control system requirements in 40 CFR 62.16714(c) using a landfill gas treatment system must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in 40 CFR 62.16726(b)(5)(ii) and must calibrate, maintain, and operate according to the manufacturer's specifications a device that records flow to the treatment system and bypass of the treatment system (if applicable). The owner or operator must:

(1) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and

(2) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(h) The monitoring requirements of paragraphs (b), (c), (d), and (g) of this section apply at all times the designated facility is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable.

(i) Incorporation by reference required material.

(1) The material required by this section was approved for incorporation by reference into this section by the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. You may inspect approved material at the EPA Docket Center, WJC West Building, Room Number 3334, 1301 Constitution Ave. NW, Washington, DC, (202) 566-1744, Docket ID No. EPA-HQ-OAR-2019-0338 and obtain it from the source(s)

listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fedreg.legal@nara.gov, or go to www.archives.gov/federal-register/cfr/ibr-locations.html.

(2) ASTM International, 100 Barr Harbor Drive, P.O. Box CB700, West Conshohocken, Pennsylvania 19428-2959, (800) 262-1373, www.astm.org.

(i) ASTM D6522-11 Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, approved December 1, 2011.

(ii) [Reserved]

The Permittee shall be deemed in noncompliance with 40 CFR 62 OOO if these monitoring requirements above are not met.

Reporting guidelines [40 CFR 62.16724]
Follow the reporting provisions listed in this section, as applicable, except as provided under 40 CFR 60.24 and 40 CFR 62.16711(g), (h), and 40 CFR 62.16724(d)(2).

(a) **Design capacity report.** Submit the initial design capacity report no later than September 20, 2021. The initial design capacity report must contain the following information:

(1) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the state, local, or tribal agency responsible for regulating the landfill.

(2) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the state, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity must be calculated using good engineering practices. The calculations must be provided, along with the relevant parameters as part of the report. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site-specific density, which must be recalculated annually. Any density conversions must be documented and submitted with the design capacity report. The state, local, or tribal agency or the Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(b) **Amended design capacity report.** An amended design capacity report must be submitted providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to meet or exceed 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in 40 CFR 62.16726(f).

(c) **NMOC emission rate report.** For existing MSW landfills covered by this subpart with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the NMOC emission rate report must be submitted following the procedure specified in paragraph (j)(2) of this section no later than 90 days after the effective date of this subpart. The NMOC emission rate report must be submitted to the Administrator annually following the procedure specified in paragraph (j)(2) of this section, except as provided for in paragraph (c)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.

(1) The NMOC emission rate report must contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in 40 CFR 62.16718(a) or (b), as applicable.

(2) The NMOC emission rate report must include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.

(3) If the estimated NMOC emission rate as reported in the annual report to the Administrator is less than 34 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to submit, following the procedure specified in paragraph (j)(2) of this section, an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate must include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided to the Administrator. This estimate must be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate must be

submitted to the Administrator. The revised estimate must cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

(4) Each owner or operator subject to the requirements of this subpart is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with 40 CFR 62.16714(b) and (c), during such time as the collection and control system is in operation and in compliance with 40 CFR 62.16716 and 40 CFR 62.16720.

(d) **Collection and control system design plan.** The collection and control system design plan must be prepared and approved by a professional engineer and must meet the following requirements:

(1) The collection and control system as described in the design plan must meet the design requirements in 40 CFR 62.16714(b) and (c).

(2) The collection and control system design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of 40 CFR 62.16716 through 40 CFR 62.16726 proposed by the owner or operator.

(3) The collection and control system design plan must either conform to specifications for active collection systems in 40 CFR 62.16728 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to 40 CFR 62.16728.

(4) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must submit a copy of the collection and control system design plan cover page that contains the engineer's seal to the Administrator within 1 year of the first NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 megagrams per year, except as follows:

(i) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in 40 CFR 62.16718(a)(3) and the resulting rate is less than 34 megagrams per year, annual periodic reporting must be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated NMOC emission rate is equal to or greater than 34 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated NMOC emission rate based on NMOC sampling and analysis, must be submitted, following the procedures in paragraph (j)(2) of this section, within 180 days of the first calculated exceedance of 34 megagrams per year.

(ii) If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant k, as provided in Tier 3 in 40 CFR 62.16718(a)(4), and the resulting NMOC emission rate is less than 34 megagrams per year, annual periodic reporting must be resumed. The resulting site-specific methane generation rate constant k must be used in the NMOC emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of 40 CFR 62.16718(a)(4) and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in paragraph (j)(2) of this section, to the Administrator within 1 year of the first calculated NMOC emission rate equaling or exceeding 34 megagrams per year.

(iii) If the owner or operator elects to demonstrate that site-specific surface methane emissions are below 500 parts-per-million methane, based on the provisions of 40 CFR 62.16718(a)(6), then the owner or operator must submit annually a Tier 4 surface emissions report as specified in this paragraph following the procedure specified in paragraph (j)(2) of this section until a surface emissions reading of 500 parts-per-million methane or greater is found. If the Tier 4 surface emissions report shows no surface emissions readings of 500 parts-per-million methane or greater for four consecutive quarters at a closed landfill, then the landfill owner or operator may reduce Tier 4 monitoring from a quarterly to an annual frequency. The Administrator may request such additional information as may be necessary to verify the reported instantaneous surface emission readings. The Tier 4 surface emissions report must clearly identify the location, date and time (to the nearest second), average wind speeds including wind gusts, and reading (in parts-per-million) of any value 500 parts-per-million methane or greater, other than non-repeatable, momentary readings. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places. The Tier 4 surface emission report should also include the results of the most recent Tier 1 and Tier 2 results in order to verify that the landfill does not exceed 50 megagrams per year of NMOC.

(A) The initial Tier 4 surface emissions report must be submitted annually, starting within 30 days of completing the fourth quarter of Tier 4 SEM that demonstrates that site-specific surface methane emissions are below 500 parts-per-million methane, and following the procedure specified in paragraph (j)(2) of this section

(B) The Tier 4 surface emissions rate report must be submitted within 1 year of the first measured surface exceedance of 500 parts-per-million methane, following the procedure specified in paragraph (j)(2) of

this section.

(iv) If the landfill is in the closed landfill subcategory, the owner or operator is exempt from submitting a collection and control system design plan to the Administrator provided that conditions in 40 CFR 62.16711(g)(3) are met. If not, the owner or operator shall follow the submission procedures and timing in 40 CFR 62.16724(d)(ii) and (iii) using a level of 50 Mg/yr instead of 34 Mg/yr.

(5) The landfill owner or operator must notify the Administrator that the design plan is completed and submit a copy of the plan's signature page. The Administrator has 90 days to decide whether the design plan should be submitted for review. If the Administrator chooses to review the plan, the approval process continues as described in paragraph (c)(6) of this section. However, if the Administrator indicates that submission is not required or does not respond within 90 days, the landfill owner or operator can continue to implement the plan with the recognition that the owner or operator is proceeding at their own risk. In the event that the design plan is required to be modified to obtain approval, the owner or operator must take any steps necessary to conform any prior actions to the approved design plan and any failure to do so could result in an enforcement action.

(6) Upon receipt of an initial or revised design plan, the Administrator must review the information submitted under paragraphs (d)(1) through (3) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems. If the Administrator does not approve or disapprove the design plan, or does not request that additional information be submitted within 90 days of receipt, then the owner or operator may continue with implementation of the design plan, recognizing they would be proceeding at their own risk.

(7) If the owner or operator chooses to demonstrate compliance with the emission control requirements of this subpart using a treatment system as defined in this subpart, then the owner or operator must prepare a site-specific treatment system monitoring plan as specified in 40 CFR 62.16726(b)(5). Legacy controlled landfills must prepare the monitoring plan no later than May 23, 2022.

(e) **Revised design plan.** The owner or operator who has already been required to submit a design plan under paragraph (d) of this section, or under subpart GGG of this part; 40 CFR part 60, subpart WWW; or a state plan implementing subpart Cc of 40 CFR part 60, must submit a revised design plan to the Administrator for approval as follows:

(1) At least 90 days before expanding operations to an area not covered by the previously approved design plan.

(2) Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted to the Administrator according to paragraph (d) of this section.

(f) **Closure report.** Each owner or operator of a controlled landfill must submit a closure report to the Administrator within 30 days of ceasing waste acceptance. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4).

(g) **Equipment removal report.** Each owner or operator of a controlled landfill must submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report must contain the following items:

(i) A copy of the closure report submitted in accordance with paragraph (f) of this section; and

(ii) A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired, unless the report of the results of the performance test has been submitted to the EPA via the EPA's Central Data Exchange (CDX), or information that demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flows. In the equipment removal report, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX; and

(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year, unless the NMOC emission rate reports have been submitted to the EPA via the EPA's CDX. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports; or

(iv) For the closed landfill subcategory, dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year, unless the NMOC emission rate reports have been submitted to the EPA via the EPA's CDX. If the NMOC emission rate reports have been previously submitted to the EPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the

EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports.

(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 62.16714(f) have been met.

(h) **Annual report.** The owner or operator of a landfill seeking to comply with 40 CFR 62.16714(e)(2) using an active collection system designed in accordance with 40 CFR 62.16714(b) must submit to the Administrator, following the procedures specified in paragraph (j)(2) of this section, an annual report of the recorded information in paragraphs (h)(1) through (7) of this section. The initial annual report must be submitted within 180 days of installation and startup of the collection and control system except for legacy controlled landfills that have already submitted an initial report under 40 CFR part 60, subpart WWW; subpart GGG of this part; or a state plan implementing 40 CFR part 60, subpart Cc. Except for legacy controlled landfills, the initial annual report must include the initial performance test report required under 40 CFR 60.8, as applicable, unless the report of the results of the performance test has been submitted to the EPA via the EPA's CDX. Legacy controlled landfills are exempted from submitting performance test reports in EPA's CDX provided that those reports were submitted under 40 CFR part 60, subpart WWW; subpart GGG of this part; or a state plan implementing 40 CFR part 60, subpart Cc. In the initial annual report, the process unit(s) tested, the pollutant(s) tested and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the EPA's CDX. The initial performance test report must be submitted, following the procedure specified in paragraph (j)(1) of this section, no later than the date that the initial annual report is submitted. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 62.16726(c)(1). Legacy controlled landfills are required to submit the annual report no later than one year after the most recent annual report submitted. If complying with the operational provisions of 40 CFR 63.1958, 40 CFR 63.1960, and 40 CFR 63.1961 of this chapter, as allowed at §§62.16716, 62.16720, and 62.16722, the owner or operator must follow the semi-annual reporting requirements in 40 CFR 63.1981(h) of this chapter in lieu of this paragraph.

(1) Value and length of time for exceedance of applicable parameters monitored under 40 CFR 62.16722(a)(1), (b), (c), (d), and (g).

(2) Description and duration of all periods when the gas stream was diverted from the control device or treatment system through a bypass line or the indication of bypass flow as specified under 40 CFR 62.16722.

(3) Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating.

(4) All periods when the collection system was not operating.

(5) The location of each exceedance of the 500 parts-per-million methane concentration as provided in 40 CFR 62.16716(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.

(6) The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 62.16720(a)(3), (4), (b), and (c)(4).

(7) For any corrective action analysis for which corrective actions are required in 40 CFR 62.16720(a)(3) or (4) and that take more than 60 days to correct the exceedance, the root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure or elevated temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

(i) **Initial performance test report.** Each owner or operator seeking to comply with 40 CFR 62.16714(c) must include the following information with the initial performance test report required under 40 CFR 60.8 of this chapter:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area;

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

(6) The provisions for the control of off-site migration.

(j) **Electronic reporting.** The owner or operator must submit reports electronically according to paragraphs (j)(1) and

(2) of this section.

(1) Within 60 days after the date of completing each performance test (as defined in 40 CFR 60.8 of this chapter), the owner or operator must submit the results of each performance test according to the following procedures:

(i) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test, you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). The CEDRI can be accessed through the EPA's CDX (https://cdx.epa.gov/). Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternative file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT website, once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(ii) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test, you must submit the results of the performance test to the Administrator at the appropriate address listed in 40 CFR 60.4 of this chapter.

(2) Each owner or operator required to submit reports following the procedure specified in this paragraph must submit reports to the EPA via the CEDRI (CEDRI can be accessed through the EPA's CDX). The owner or operator must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI website (https://www3.epa.gov/ttn/chief/cedri/index.html). If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the owner or operator must submit the report to the Administrator at the appropriate address listed in 40 CFR 60.4 of this chapter. Once the form has been available in CEDRI for 90 calendar days, the owner or operator must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted.

(k) **Corrective action and the corresponding timeline.** The owner or operator must submit according to paragraphs (k)(1) and (2) of this section. If complying with the operational provisions of 40 CFR 63.1958, 40 CFR 63.1960, and 63.1961 of this chapter, as allowed at 40 CFR 62.16716, 40 CFR 62.16720, and 40 CFR 62.16722, the owner or operator must follow the corrective action and the corresponding timeline reporting requirements in 40 CFR 63.1981(j) of this chapter in lieu of paragraphs (k)(1) and (2) of this section.

(1) For corrective action that is required according to 40 CFR 62.16720(a)(3)(iii) or 40 CFR 62.16720(a)(4)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, you must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Administrator as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit) or above. The Administrator must approve the plan for corrective action and the corresponding timeline.

(2) For corrective action that is required according to 40 CFR 62.16720(a)(3)(iii) or 40 CFR 62.16720(a)(4)(iii) and is not completed within 60 days after the initial exceedance, you must submit a notification to the Administrator as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance.

(l) **Liquids addition.** The owner or operator of a designated facility with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters that has employed leachate recirculation or added liquids based on a Research, Development, and Demonstration permit (issued through Resource Conservation and Recovery Act (RCRA), subtitle D, part 258) within the last 10 years must submit to the Administrator, annually, following the procedure specified in paragraph (j)(2) of this section, the following information:

(1) Volume of leachate recirculated (gallons per year) and the reported basis of those estimates (records or engineering estimates).

(2) Total volume of all other liquids added (gallons per year) and the reported basis of those estimates (records or engineering estimates).

(3) Surface area (acres) over which the leachate is recirculated (or otherwise applied).

(4) Surface area (acres) over which any other liquids are applied.

(5) The total waste disposed (megagrams) in the areas with recirculated leachate and/or added liquids based on on-site records to the extent data are available, or engineering estimates and the reported basis of those estimates.

(6) The annual waste acceptance rates (megagrams per year) in the areas with recirculated leachate and/or added liquids, based on on-site records to the extent data are available, or engineering estimates.
(7) The initial report must contain items in paragraph (l)(1) through (6) of this section per year for the most recent365 days as well as for each of the previous 10 years, to the extent historical data are available in on-site records, and the report must be submitted no later than June 21, 2022.
(8) Subsequent annual reports must contain items in paragraph (l)(1) through (6) of this section for the 365-day period following the 365-day period included in the previous annual report, and the report must be submitted no later than 365 days after the date the previous report was submitted.
(9) Landfills in the closed landfill subcategory are exempt from reporting requirements contained in paragraphs (l)(1) through (7) of this section.
(10) Landfills may cease annual reporting of items in paragraphs (l)(1) through (6) of this section once they have submitted the closure report in 40 CFR 62.16724(f).

(m) **Tier 4 notification.**
(1) The owner or operator of a designated facility with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must provide a notification of the date(s) upon which it intends to demonstrate site-specific surface methane emissions are below 500 parts-per-million methane, based on the Tier 4 provisions of 40 CFR 62.16718(a)(6). The landfill must also include a description of the wind barrier to be used during the SEM in the notification. Notification must be postmarked not less than 30 days prior to such date.
(2) If there is a delay to the scheduled Tier 4 SEM date due to weather conditions, including not meeting the wind requirements in 40 CFR 62.16718(a)(6)(A), the owner or operator of a landfill shall notify the Administrator by email or telephone no later than 48 hours before any known delay in the original test date, and arrange an updated date with the Administrator by mutual agreement.

(n) **Notification of meeting Tier 4.** The owner or operator of a designated facility must submit a notification to the EPA Regional office within 10 business days of completing each increment of progress. Each notification must indicate which increment of progress specified in 40 CFR 62.16712 has been achieved. The notification must be signed by the owner or operator of the landfill.
(1) For the first increment of progress (submit control plan), you must follow paragraph (p) of this section in addition to submitting the notification described in paragraph (n) of this section. A copy of the design plan must also be kept on site at the landfill.
(2) For the second increment of progress, a signed copy of the contract(s) awarded must be submitted in addition to the notification described in paragraph (n) of this section.

(o) **Notification of failing to meet an increment of progress.** The owner or operator of a designated facility who fails to meet any increment of progress specified in 40 CFR 62.16712(a)(1) through (5) according to the applicable schedule in 40 CFR 62.16712 must submit notification that the owner or operator failed to meet the increment to the EPA Regional office within 10 business days of the applicable date in 40 CFR 62.16712.

(p) **Alternate dates for increments 2 and 3.** The owner or operator (or the state or tribal air pollution control authority) that is submitting alternative dates for increments 2 and 3 according to 40 CFR 62.16712(d) must do so by the date specified for submitting the final control plan. The date for submitting the final control plan is specified in 40 CFR 62.16712(c), as applicable. The owner or operator (or the state or tribal air pollution control authority) must submit a justification if any of the alternative dates are later than the increment dates in table 1 of this subpart. In addition to submitting the alternative dates to the appropriate EPA Regional office, the owner or operator must also submit the alternative dates to the state or tribe.

(q) **24-hour high temperature report.** Each owner or operator that chooses to comply with the provisions in 40 CFR 63.1958, 40 CFR 63.1960, and 40 CFR 63.1961 of this chapter, as allowed in 40 CFR 62.16716, 40 CFR 62.16720, and 40 CFR 62.16722, must submit the 24-hour high temperature report according to 40 CFR 63.1981(k) of this chapter.

Recordkeeping guidelines [40 CFR 62.16726]

(a) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator of an MSW landfill subject to the provisions of 40 CFR 62.16714(e) must keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report that triggered 40 CFR 62.16714(e), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator of a controlled landfill must keep up-to-date, readily accessible records for the life of the control system equipment of the data listed in paragraphs (b)(1) through (5) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring must be maintained for a minimum of 5 years. Records of the control device vendor

specifications must be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with 40 CFR 62.16714(b):
  (i) The maximum expected gas generation flow rate as calculated in 40 CFR 62.16720(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.
  (ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 62.16728(a)(1).

(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with 40 CFR 62.16714(c) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:
  (i) The average temperature measured at least every 15 minutes and averaged over the same time period of the performance test.
  (ii) The percent reduction of NMOC determined as specified in 40 CFR 62.16714(c)(2) achieved by the control device.

(3) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with 40 CFR 62.16714(c)(2)(i) through use of a boiler or process heater of any size: A description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with 40 CFR 62.16714(c)(1) through use of a non-enclosed flare, the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18 of this chapter; and continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent.

(5) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with 40 CFR 62.16714(c)(3) through use of a landfill gas treatment system:
  (i) **Bypass records.** Records of the flow of landfill gas to, and bypass of, the treatment system.
  (ii) **Site-specific treatment monitoring plan.** A site-specific treatment monitoring plan, to include:
    (A) Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.
    (B) Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.
    (C) Documentation of the monitoring methods and ranges, along with justification for their use.
    (D) Identify who is responsible (by job title) for data collection.
    (E) Processes and methods used to collect the necessary data.
    (F) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

(c) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator of a controlled landfill subject to the provisions of this subpart must keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 62.16722 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that must be recorded and reported under 40 CFR 62.16724:
  (i) For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average temperature was more than 28 degrees Celsius (82 degrees Fahrenheit) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 62.16714(c) was determined.
  (ii) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under paragraph (b)(3) of this section.

(2) Each owner or operator subject to the provisions of this subpart must keep up-to-date, readily accessible continuous records of the indication of flow to the control system and the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40

CFR 62.16722.

(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with 40 CFR 62.16714(c) must keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater.

Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other state, local, tribal, or Federal regulatory requirements.

(4) Each owner or operator seeking to comply with the provisions of this subpart by use of a non-enclosed flare must keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 62.16722(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(5) Each owner or operator of a landfill seeking to comply with 40 CFR 62.16714(e) using an active collection system designed in accordance with 40 CFR 62.16714(b) must keep records of periods when the collection system or control device is not operating.

(d) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator subject to the provisions of this subpart must keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label on each collector that matches the labeling on the plot map.

(1) Each owner or operator subject to the provisions of this subpart must keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under 40 CFR 62.16720(b).

(2) Each owner or operator subject to the provisions of this subpart must keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 62.16728(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in 40 CFR 62.16728(a)(3)(ii).

(e) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator subject to the provisions of this subpart must keep for at least 5 years up-to-date, readily accessible records of the items in paragraphs (e)(1) through (5) of this section. Each owner or operator that chooses to comply with the provisions in 40 CFR 63.1958, 40 CFR 63.1960, and 40 CFR 63.1961 of this chapter, as allowed in 40 CFR 62.16716, 40 CFR 62.16720, and 40 CFR 62.16722, must keep the records in paragraph (e)(6) of this section and must keep records according to 40 CFR 63.1983(e)(1) through (5) of this chapter in lieu of paragraphs (e)(1) through (5) of this section.

(1) All collection and control system exceedances of the operational standards in 40 CFR 62.16716, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(2) Each owner or operator subject to the provisions of this subpart must also keep records of each wellhead temperature monitoring value of 55 degrees Celsius (131 degrees Fahrenheit) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent.

(3) For any root cause analysis for which corrective actions are required in 40 CFR 62.16720(a)(3) or 40 CFR 62.16720(a)(4), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed.

(4) For any root cause analysis for which corrective actions are required in 40 CFR 62.16720(a)(3)(ii) or 40 CFR 62.16720(a)(4)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.

(5) For any root cause analysis for which corrective actions are required in 40 CFR 62.16720(a)(3)(iii) or 40 CFR 62.16720(a)(4)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the regulatory agency.

(6) Each owner or operator that chooses to comply with the provisions in 40 CFR 63.1958, 40 CFR 63.1960, and 40 CFR 63.1961 of this chapter, as allowed in 40 CFR 62.16716, 40 CFR 62.16720, and 40 CFR 62.16722, must keep records of the date upon which the owner or operator started complying with the provisions in 40 CFR 63.1958, 40 CFR 63.1960, and 40 CFR 63.1961 of this chapter.

(f) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of “design capacity,” must keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are

retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(g) Landfill owners or operators seeking to demonstrate that site-specific surface methane emissions are below 500 parts-per-million by conducting SEM under the Tier 4 procedures specified in 40 CFR 62.16718(a)(6) must keep for at least 5 years up-to-date, readily accessible records of all SEM and information related to monitoring instrument calibrations conducted according to sections 8 and 10 of EPA Method 21 of appendix A-7 of 40 CFR part 60 of this chapter, including all of the following items:
  (1) Calibration records.
    (i) Date of calibration and initials of operator performing the calibration.
    (ii) Calibration gas cylinder identification, certification date, and certified concentration.
    (iii) Instrument scale(s) used.
    (iv) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value.
    (v) If an owner or operator makes their own calibration gas, a description of the procedure used.
  (2) Digital photographs of the instrument setup. The photographs must be time and date-stamped and taken at the first sampling location prior to sampling and at the last sampling location after sampling at the end of each sampling day, for the duration of the Tier 4 monitoring demonstration.
  (3) Timestamp of each surface scan reading.
    (i) timestamp should be detailed to the nearest second, based on when the sample collection begins.
    (ii) A log for the length of time each sample was taken using a stopwatch (e.g., the time the probe was held over the area).
  (4) Location of each surface scan reading. The owner or operator must determine the coordinates using an instrument with an accuracy of at least 4 meters. Coordinates must be in decimal degrees with at least five decimal places.
  (5) Monitored methane concentration (parts per million) of each reading.
  (6) Background methane concentration (parts per million) after each instrument calibration test.
  (7) Adjusted methane concentration using most recent calibration (parts-per-million).
  (8) For readings taken at each surface penetration, the unique identification location label matching the label specified in paragraph (d) of this section.
  (9) Records of the operating hours of the gas collection system for each destruction device.

(h) Except as provided in 40 CFR 62.16724(d)(2), each owner or operator subject to the provisions of this subpart must keep for at least 5 years up-to-date, readily accessible records of all collection and control system monitoring data for parameters measured in 40 CFR 62.16722(a)(1), (2), and (3).

(i) Any records required to be maintained by this subpart that are submitted electronically via the EPA's CDX may be maintained in electronic format.

(j) For each owner or operator reporting leachate or other liquids addition under 40 CFR 62.16724(l), keep records of any engineering calculations or company records used to estimate the quantities of leachate or liquids added, the surface areas for which the leachate or liquids were applied, and the estimates of annual waste acceptance or total waste in place in the areas where leachate or liquids were applied.

The Permittee shall be deemed in noncompliance with 40 CFR 62 OOO if these record keeping requirements above are not met.

Specifications for active collection systems [40 CFR 62.16728]

(a) Each owner or operator seeking to comply with 40 CFR 62.16714(b) must site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator.
  (1) The collection devices within the interior must be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues must be addressed in the design: Depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, resistance to the refuse decomposition heat, and ability to isolate individual components or sections for repair or troubleshooting without shutting down entire collection system.
  (2) The sufficient density of gas collection devices determined in paragraph (a)(1) of this section must address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.
  (3) The placement of gas collection devices determined in paragraph (a)(1) of this section must control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (ii) of this section.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 40 CFR 62.16726(d). The documentation must provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and must be provided to the Administrator upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material must be documented and provided to the Administrator upon request. A separate NMOC emissions estimate must be made for each section proposed for exclusion, and the sum of all such sections must be compared to the NMOC emissions estimate for the entire landfill.

(A) The NMOC emissions from each section proposed for exclusion must be computed using Equation 7:

$$Q_i = 2kL_oM_i(e^{-kt_i})(C_{NMOC})(3.6\times10^{-9}) \quad \text{(Eq. 7)}$$

Where:
Q_i = NMOC emission rate from the ith section, megagrams per year.
k = Methane generation rate constant, $year^{-1}$.
L_o = Methane generation potential, cubic meters per megagram solid waste.
M_i = Mass of the degradable solid waste in the ith section, megagram.
t_i = Age of the solid waste in the ith section, years.
C_{NMOC} = Concentration of NMOC, parts-per-million by volume.
3.6×10^{-9} = Conversion factor.

(B) If the owner or operator is proposing to exclude, or cease gas collection and control from, nonproductive physically separated (e.g., separately lined) closed areas that already have gas collection systems, NMOC emissions from each physically separated closed area must be computed using either Equation 3 in 40 CFR 62.16718 or Equation 7 in paragraph (a)(3)(ii)(A) of this section.

(iii) The values for k and C_{NMOC} determined in field testing must be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (the distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k, Lo, and C_{NMOC} provided in 40 CFR 62.16718 or the alternative values from 40 CFR 62.16718 must be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with 40 CFR 62.16714(b) must construct the gas collection devices using the following equipment or procedures:

(1) The landfill gas extraction components must be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: Convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system must extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors must be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations must be situated with regard to the need to prevent excessive air infiltration.

(2) Vertical wells must be placed so as not to endanger underlying liners and must address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors must be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices must be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

(3) Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly must include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices must be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

(c) Each owner or operator seeking to comply with 40 CFR 62.16714(c) must convey the landfill gas to a control system in compliance with 40 CFR 62.16714(c) through the collection header pipe(s). The gas mover equipment must be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas

moving equipment using the following procedures:
(1) For existing collection systems, the flow data must be used to project the maximum flow rate. If no flow data exist, the procedures in paragraph (c)(2) of this section must be used.
(2) For new collection systems, the maximum flow rate must be in accordance with 40 CFR 62.16720(a)(1).

The Permittee shall be deemed in noncompliance with 40 CFR 62 OOO if these specifications for active collection systems above are not met.

Definitions [40 CFR 62.16730]
Terms used but not defined in this subpart have the meaning given them in the Clean Air Act and in subparts A and B of 40 CFR part 60 of this chapter.

Achieve final compliance means to connect and operate the collection and control system as specified in the final control plan. Within 180 days after the date the landfill is required to achieve final compliance, the initial performance test must be conducted.

Active collection system means a gas collection system that uses gas mover equipment.

Active landfill means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

Administrator means:
(1) For municipal solid waste landfills covered by the federal plan, the Administrator of the EPA or his/her authorized representative (e.g., delegated authority);
(2) For municipal solid waste landfills covered by an approved state plan, the director of the state air pollution control agency or his/her authorized representative.

Award contract means the MSW landfill owner or operator enters into legally binding agreements or contractual obligations that cannot be canceled or modified without substantial financial loss to the MSW landfill owner or operator. The MSW landfill owner or operator may award a number of contracts to install the collection and control system. To meet this increment of progress, the MSW landfill owner or operator must award a contract or contracts to initiate on-site construction or installation of the collection and control system.

Closed landfill means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under 40 CFR 60.7(a)(4) of this chapter. Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

Closed area means a separately lined area of an MSW landfill in which solid waste is no longer being placed. If additional solid waste is placed in that area of the landfill, that landfill area is no longer closed. The area must be separately lined to ensure that the landfill gas does not migrate between open and closed areas.

Closed landfill subcategory means a closed landfill that has submitted a closure report as specified in 40 CFR 62.16724(f) on or before September 27, 2017.

Closure means that point in time when a landfill becomes a closed landfill.

Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Complete on-site construction means that all necessary collection system components and air pollution control devices identified in the final control plan are on site, in place, and ready for operation.

Controlled landfill means any landfill at which collection and control systems are required under this subpart as a result of the NMOC emission rate. The landfill is considered controlled at the time a collection and control system design plan is prepared in compliance with 40 CFR 62.16714(e)(2). Controlled landfills also includes those landfills that meet the definition of legacy controlled landfills, as defined in this subpart.

Corrective action analysis means a description of all reasonable interim and long-term measures, if any, that are available, and an explanation of why the selected corrective action(s) is/are the best alternative(s), including, but not limited to,

considerations of cost effectiveness, technical feasibility, safety, and secondary impacts.

Design capacity means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the state, local, or tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site-specific density, which must be recalculated annually.

Disposal facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

Emission rate cutoff means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.

Enclosed combustor means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

EPA approved state plan means a state plan that EPA has approved based on the requirements in 40 CFR part 60, subpart B or Ba to implement and enforce 40 CFR part 60, subpart Cf. An approved state plan becomes effective on the date specified in the document published in the Federal Register announcing EPA's approval.

Flare means an open combustor without enclosure or shroud.

Final control plan (Collection and control system design plan) means a plan that describes the collection and control system that will capture the gas generated within an MSW landfill. The collection and control system design plan must be prepared by a professional engineer and must describe a collection and control system that meets the requirements of 40 CFR 62.1614(b) and (c). The final control plan must contain engineering specifications and drawings of the collection and control system. The final control plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of 40 CFR 62.16716 through 40 CFR 62.16726 proposed by the owner or operator. The final control plan must either conform with the specifications for active collection systems in 40 CFR 62.16728 or include a demonstration that shows that based on the size of the landfill and the amount of waste expected to be accepted, the system is sized properly to collect the gas, control emissions of NMOC to the required level and meet the operational standards for a landfill.

Gas mover equipment means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

Gust means the highest instantaneous wind speed that occurs over a 3-second running average.

Indian Country means all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation; all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state; and all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Initiate on-site construction means to begin any of the following: Installation of the collection and control system to be used to comply with the emission limits as outlined in the final control plan; physical preparation necessary for the installation of the collection and control system to be used to comply with the final emission limits as outlined in the final control plan; or, alteration of an existing collection and control system to be used to comply with the final emission limits as outlined in the final control plan.

Household waste means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). Household waste does not include fully segregated yard waste. Segregated yard waste means vegetative matter resulting exclusively from the cutting of grass, the pruning and/or removal of bushes, shrubs, and trees, the weeding of gardens, and other landscaping maintenance activities. Household waste does not include construction, renovation, or demolition wastes, even if originating from a household.

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the RCRA, parts 264 and 265 of this chapter. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Interior well means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR 257.2 of this title.

Lateral expansion means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Leachate recirculation means the practice of taking the leachate collected from the landfill and reapplying it to the landfill by any of one of a variety of methods, including pre-wetting of the waste, direct discharge into the working face, spraying, infiltration ponds, vertical injection wells, horizontal gravity distribution systems, and pressure distribution systems.
Legacy controlled landfill means any MSW landfill subject to this subpart that submitted a collection and control system design plan prior to May 21, 2021 in compliance with 40 CFR 60.752(b)(2)(i) of this chapter, the Federal plan at subpart GGG of this part, or a state/tribal plan implementing 40 CFR part 60, subpart Cc of this chapter, depending on which regulation was applicable to the landfill. This definition applies to those landfills that completed construction and began operations of the GCCS and those that are within the 30-month timeline for installation and start-up of a GCCS according to 40 CFR 60.752(b)(2)(ii) of this chapter, the Federal plan at subpart GGG of this part, or a state/tribal plan implementing 40 CFR part 60, subpart Cc.

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. Modification does not occur until the owner or operator commences construction on the lateral or vertical expansion.

Municipal solid waste landfill or MSW landfill means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA, Subtitle D wastes (40 CFR 257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

Municipal solid waste landfill emissions or MSW landfill emissions means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

NMOC means nonmethane organic compounds, as measured according to the provisions of 40 CFR 62.16718.

Negative declaration letter means a letter to EPA declaring that there are no existing MSW landfills in the state or that there are no existing MSW landfills in the state that must install collection and control systems according to the requirements of 40 CFR part 60, subpart Cf.

Nondegradable waste means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.

Passive collection system means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

Protectorate means American Samoa, the Commonwealth of Puerto Rico, the District of Columbia, Guam, the Northern Mariana Islands, and the Virgin Islands.

Root cause analysis means an assessment conducted through a process of investigation to determine the primary cause, and

any other contributing causes, of positive pressure at a wellhead.

Sludge means the term sludge as defined in 40 CFR 258.2.

Solid waste means the term solid waste as defined in 40 CFR 258.2.

State means any of the 50 United States and the protectorates of the United States.

State plan means a plan submitted pursuant to section 111(d) of the Clean Air Act and subpart B of part 60 of this chapter that implements and enforces subpart Cf of 40 CFR part 60 of this chapter.

Sufficient density means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

Treated landfill gas means landfill gas processed in a treatment system as defined in this subpart.

Treatment system means a system that filters, de-waters, and compresses landfill gas for sale or beneficial use.

Tribal plan means a plan submitted by a Tribal Authority pursuant to 40 CFR parts 9, 35, 49, 50, and 81 that implements and enforces 40 CFR part 60, subpart Cf.

Untreated landfill gas means any landfill gas that is not treated landfill gas.

Table 1 to Subpart OOO of Part 62 - Generic Compliance Schedule and Increments of Progress

Increment	Date if using tiers 1, 2, or 3	Date if using tier 4	Date if a legacy controlled landfill
Increment 1 - Submit cover page of final control plan	1 year after initial NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥34 megagrams per year.[1]	1 year after the first measured concentration of methane of 500 parts per million or greater from the surface of the landfill	1 year after the first NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥50 megagrams per year submitted under a previous regulation.[2]
Increment 2 - Award Contracts	20 months after initial NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥34 megagrams per year.[1]	20 months after the most recent NMOC emission rate report showing NMOC emissions ≥34 megagrams per year	20 months after the most recent NMOC emission rate report showing NMOC emissions ≥50 megagrams per year submitted under a previous regulation.[2]
Increment 3 - Begin on-site construction	24 months after initial NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥34 megagrams per year.[1]	24 months after the most recent NMOC emission rate report showing NMOC emissions ≥34 megagrams per year	24 months after the most recent NMOC emission rate report showing NMOC emissions ≥50 megagrams per year submitted under a previous regulation.[2]
Increment 4 - Complete on-site construction	30 months after initial NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥34 megagrams per year.[1]	30 months after the most recent NMOC emission rate report showing NMOC emissions ≥34 megagrams per year	30 months after the first NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥50 megagrams submitted under a previous regulation.
Increment 5 - Final compliance	30 months after initial NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥34 megagrams per year.[1]	30 months after the most recent NMOC emission rate report showing NMOC emissions ≥34 megagrams per year	30 months after the first NMOC emission rate report or the first annual emission rate report showing NMOC emissions ≥50 megagrams submitted under a previous regulation.[2]

[1] 50 megagrams per year NMOC for the closed landfill subcategory.

[2] Previous regulation refers to 40 CFR part 60, subpart WWW; 40 CFR part 62, subpart GGG; or a state plan implementing 40 CFR part 60, subpart Cc. Increments of progress that have already been completed under previous regulations do not have to be completed again under this subpart.

5. 15A NCAC 02Q .0317: AVOIDANCE CONDITIONS FOR 15A NCAC 02D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

a. In order to avoid applicability of 15A NCAC 02D .0530 (g) for major sources and major modifications, open flares (CD-Flare1 and CD-Flare2) shall discharge into the atmosphere less than 250 tons of Carbon Monoxide and less than 2,628,000,000 ft3 per consecutive 12-month period. [15A NCAC 02D .0530]

Testing [15A NCAC 02Q .0508(f)]

b. If emissions testing is required, the Permittee shall perform such testing in accordance with General Condition JJ. If the results of this test are above the limit given in Section 2.1 A.5.a, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530.

Monitoring/Recordkeeping [15A NCAC 02Q .0508(f)]

c. The Permittee shall keep monthly records of the amount of landfill gas burned in open flares (ID No's CD-Flare1 and CD-Flare2) in a logbook (written or in electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if the landfill gas is not monitored.

d. The combustion of landfill gas in the open flares (CD-Flare1 and CD-Flare2) shall be limited such that Carbon Monoxide emissions shall not exceed 250 tons for any consecutive 12-month period. Calculations shall be made monthly and recorded in a logbook (written or in electronic format), according to the following formula:

$$A_{CO} = \left[\frac{0.37\ lbs\ CO}{1\times10^{6}\ Btu} \times \frac{B_{CD-Flare1}\ ft^3}{month} \times \frac{506\ Btu}{ft^3} \times \frac{1\ ton\ CO}{2000\ lbs} \right] + \left[\frac{0.37\ lbs\ CO}{1\times10^{6}\ Btu} \times \frac{C_{CD-Flare2}\ ft^3}{month} \times \frac{506 Btu}{ft^3} \times \frac{1\ ton\ CO}{2000\ lbs} \right]$$

Where: A_{co} = total emissions of carbon dioxide (tons/month)
B_{Flare1} = monthly landfill gas flow rate into flare CD-Flare1
C_{Flare2} = monthly landfill gas flow rate into flare CD-Flare2 =
Landfill gas heat input = 506 Btu/ft3
AP-42 factor for landfill gas = 0.37 lbs CO/mmBtu heat input

The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if records are not kept, and/or if the total carbon monoxide emissions from the flares (CD-Flare1 and CD-Flare2) exceed 250 tons per consecutive 12-month period.

Reporting [15A NCAC 02Q .0508(f)]

e. The Permittee shall submit a summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month time period between July and December, July 30 of each calendar year for the preceding six-month time period January and June. The report shall contain the following:
a. The monthly carbon monoxide emissions for the previous 12 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months;
b. The monthly landfill gas flow rate quantities for each flare in the previous 17 months.
All instances of deviations from the requirements of this permit must be clearly identified.

State-enforceable only

6. 15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

The Permittee 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.

State-enforceable only

7. Disclosure of Information Relating to Emissions of Fluorinated Chemicals [15A NCAC 02Q. 0308(a); 15A NCAC 02Q.0309(b)]

The Permittee shall have an ongoing duty to disclose the 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).

SECTION 3 - INSIGNIFICANT ACTIVITIES PER 15A NCAC 02Q .0503(8)

Emission Source ID No.	Emission Source Description[1,2]
IES-04	Diesel engines for miscellaneous landfill support
IES-05	Welding operations
IES-06	Diesel storage tank
IES-07	Two (2) leachate storage tanks

[1] Because an activity is insignificant does not mean that the activity is exempted from an applicable requirement (Federal or State) or that the Permittee is exempted from demonstrating compliance with any applicable requirement.

[2] When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15A NCAC 02D .1100 “Control of Toxic Air Pollutants” or 02Q .0711 “Emission Rates Requiring a Permit.”

SECTION 4 - GENERAL CONDITIONS (version 8.0, 07/10/2024)

This section describes terms and conditions applicable to this Title V facility.

A. **General Provisions** [NCGS 143-215 and 15A NCAC 02Q .0508(i)(16)]
1. Terms not otherwise defined in this permit shall have the meaning assigned to such terms as defined in 15A NCAC 02D and 02Q.
2. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to NCGS 143-215.114A and 143-215.114B, including assessment of civil and/or criminal penalties. Any unauthorized deviation from the conditions of this permit may constitute grounds for revocation and/or enforcement action by the DAQ.
3. This permit is not a waiver of or approval of any other Department permits that may be required for other aspects of the facility which are not addressed in this permit.
4. This permit does not relieve the Permittee from liability for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted facility, or from penalties therefore, nor does it allow the Permittee to cause pollution in contravention of state laws or rules, unless specifically authorized by an order from the North Carolina Environmental Management Commission.
5. Except as identified as state-only requirements in this permit, all terms and conditions contained herein shall be enforceable by the DAQ, the EPA, and citizens of the United States as defined in the Federal Clean Air Act.
6. Any stationary source of air pollution shall not be operated, maintained, or modified without the appropriate and valid permits issued by the DAQ, unless the source is exempted by rule. The DAQ may issue a permit only after it receives reasonable assurance that the installation will not cause air pollution in violation of any of the applicable requirements. A permitted installation may only be operated, maintained, constructed, expanded, or modified in a manner that is consistent with the terms of this permit.

B. **Permit Availability** [15A NCAC 02Q .0507(k) and .0508(i)(9)(B)]
The Permittee shall have available at the facility a copy of this permit and shall retain for the duration of the permit term one complete copy of the application(s) and any information submitted in support of the application package. The permit and application shall be made available to an authorized representative of the Department of Environmental Quality upon request.

C. **Severability Clause** [15A NCAC 02Q .0508(i)(2)]
In the event of an administrative challenge to a final and binding permit in which a condition is held to be invalid, the provisions in this permit are severable so that all requirements contained in the permit, except those held to be invalid, shall remain valid and must be complied with.

D. **Submissions** [15A NCAC 02Q .0507(e) and 02Q .0508(i)(16)]
Except as otherwise specified herein, one copy of all documents, reports, test data, monitoring data, notifications, request for renewal, and any other information required by this permit shall be submitted to the appropriate Regional Office. Refer to the Regional Office address on the cover page of this permit. For continuous emissions monitoring systems (CEMS) reports, continuous opacity monitoring systems (COMS) reports, quality assurance (QA)/quality control (QC) reports, acid rain CEM certification reports, and NOx budget CEM certification reports, one copy shall be sent to the appropriate Regional Office and one copy shall be sent to:

Supervisor, Stationary Source Compliance
North Carolina Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

All submittals shall include the facility name and Facility ID number (refer to the cover page of this permit).

E. **Duty to Comply** [15A NCAC 02Q .0508(i)(3)]
The Permittee shall comply with all terms, conditions, requirements, limitations and restrictions set forth in this permit. Noncompliance with any permit condition except conditions identified as state-only requirements constitutes a violation of the Federal Clean Air Act. Noncompliance with any permit condition is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

F. **Circumvention** - STATE ENFORCEABLE ONLY
The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air pollution control device(s) and appurtenances.

G. **Title V Permit Modifications**
1. Administrative Permit Amendments [15A NCAC 02Q .0514]
The Permittee shall submit an application for an administrative permit amendment in accordance with 15A NCAC 02Q .0514.
2. Transfer in Ownership or Operation and Application Submittal Content [15A NCAC 02Q .0524 and 02Q .0505]
The Permittee shall submit an application for an ownership change in accordance with 15A NCAC 02Q.0524 and 02Q .0505.
3. Minor Permit Modifications [15A NCAC 02Q .0515]
The Permittee shall submit an application for a minor permit modification in accordance with 15A NCAC 02Q .0515.
4. Significant Permit Modifications [15A NCAC 02Q .0516]
The Permittee shall submit an application for a significant permit modification in accordance with 15A NCAC 02Q .0516.
5. Reopening for Cause [15A NCAC 02Q .0517]
The Permittee shall submit an application for reopening for cause in accordance with 15A NCAC 02Q .0517.

H. **Changes Not Requiring Permit Modifications**
1. Reporting Requirements [15A NCAC 02Q .0508(f)]
Any of the following that would result in new or increased emissions from the emission source(s) listed in Section 1 must be reported to the Regional Supervisor, DAQ:
   a. changes in the information submitted in the application;
   b. changes that modify equipment or processes; or
   c. changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.
2. Section 502(b)(10) Changes [15A NCAC 02Q .0523(a)]
   a. "Section 502(b)(10) changes" means changes that contravene an express permit term or condition. Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.
   b. The Permittee may make Section 502(b)(10) changes without having the permit revised if:
      i. the changes are not a modification under Title I of the Federal Clean Air Act;
      ii. the changes do not cause the allowable emissions under the permit to be exceeded;
      iii. the Permittee notifies the Director and EPA with written notification at least seven days before the change is made; and
      iv. the Permittee shall attach the notice to the relevant permit.
   c. The written notification shall include:
      i. a description of the change;
      ii. the date on which the change will occur;
      iii. any change in emissions; and
      iv. any permit term or condition that is no longer applicable as a result of the change.
   d. Section 502(b)(10) changes shall be made in the permit the next time that the permit is revised or renewed, whichever comes first.
3. Off Permit Changes [15A NCAC 02Q .0523(b)]
The Permittee may make changes in the operation or emissions without revising the permit if:
   a. the change affects only insignificant activities and the activities remain insignificant after the change; or
   b. the change is not covered under any applicable requirement.
4. Emissions Trading [15A NCAC 02Q .0523(c)]
To the extent that emissions trading is allowed under 15A NCAC 02D, including subsequently adopted maximum achievable control technology standards, emissions trading shall be allowed without permit revision pursuant to 15A NCAC 02Q .0523(c).

I.A **Reporting Requirements for Excess Emissions** [15A NCAC 02D .0535(f) and 02Q .0508(f)(2)]

1. "Excess Emissions" - means an emission rate that exceeds any applicable emission limitation or standard allowed by any rule in Sections .0500, .0900, .1200, or .1400 of Subchapter 02D; or by a permit condition; or that exceeds an emission limit established in a permit issued under 15A NCAC 02Q .0700. *(Note: Definitions of excess emissions under 02D .1110 and 02D .1111 shall apply where defined by rule.)*
2. If a source is required to report excess emissions under NSPS (15A NCAC 02D .0524), NESHAPS (15A NCAC 02D .1110 or .1111), or the operating permit provides for periodic (e.g., quarterly) reporting of excess emissions, reporting shall be performed as prescribed therein.
3. If the source is not subject to NSPS (15A NCAC 02D .0524), NESHAPS (15A NCAC 02D .1110 or .1111), or these rules do NOT define "excess emissions," the Permittee shall report excess emissions in accordance with 15A NCAC 02D .0535 as follows:
   a. Pursuant to 15A NCAC 02D .0535, if excess emissions last for more than four hours resulting from a malfunction, a breakdown of process or control equipment, or any other abnormal condition, the owner or operator shall:
      i. notify the Regional Supervisor or Director of any such occurrence by 9:00 a.m. Eastern Time of the Division's next business day of becoming aware of the occurrence and provide:
         - name and location of the facility;
         - nature and cause of the malfunction or breakdown;
         - time when the malfunction or breakdown is first observed;
         - expected duration; and
         - estimated rate of emissions;
      ii. notify the Regional Supervisor or Director immediately when corrective measures have been accomplished; and
      iii. submit to the Regional Supervisor or Director within 15 days a written report as described in 15A NCAC 02D .0535(f)(3).

I.B **Reporting Requirements for Permit Deviations** [15A NCAC 02D .0535(f) and 02Q .0508(f)(2)]

1. "Permit Deviations" - for the purposes of this condition, any action or condition not in accordance with the terms and conditions of this permit including those attributable to upset conditions as well as excess emissions as defined above lasting less than four hours.
2. Pursuant to 15A NCAC 02Q .0508(f)(2), the Permittee shall report deviations from permit requirements (terms and conditions) quarterly by notifying the Regional Supervisor or Director of all other deviations from permit requirements not covered under 15A NCAC 02D .0535. A written report to the Regional Supervisor shall include the probable cause of such deviation and any corrective actions or preventative actions taken. The responsible official shall certify all deviations from permit requirements.

I.C **Other Requirements under 15A NCAC 02D .0535**

The Permittee shall comply with all other applicable requirements contained in 15A NCAC 02D .0535, including 15A NCAC 02D .0535(c) as follows:

1. Any excess emissions that do not occur during start-up and shut-down shall be considered a violation of the appropriate rule unless the owner or operator of the sources demonstrates to the Director that the excess emissions are a result of a malfunction. The Director shall consider, along with any other pertinent information, the criteria contained in 15A NCAC 02D .0535(c)(1) through (7).
2. 15A NCAC 02D .0535(g). Excess emissions during start-up and shut-down shall be considered a violation of the appropriate rule if the owner or operator cannot demonstrate that excess emissions are unavoidable.

J. **RESERVED**

K. **Permit Renewal** [15A NCAC 02Q .0508(e) and 02Q .0513(b)]

This 15A NCAC 02Q .0500 permit is issued for a fixed term not to exceed five years and shall expire at the end of its term. Permit expiration terminates the facility's right to operate unless a complete 15A NCAC 02Q .0500 renewal application is submitted at least six months before the date of permit expiration. If the Permittee or applicant has complied with 15A NCAC 02Q .0512(b)(1), this 15A NCAC 02Q .0500 permit shall not expire until the renewal permit has been issued or denied. Permit expiration under 15A NCAC 02Q .0400 terminates the facility's right to operate unless a complete 15A NCAC 02Q .0400 renewal application is submitted at least six months before the date of permit expiration for facilities subject to 15A NCAC 02Q .0400 requirements. In either of these events, all terms and conditions of these permits shall remain in effect until the renewal permits have been issued or denied.

L. **Need to Halt or Reduce Activity Not a Defense** [15A NCAC 02Q .0508(i)(4)]
It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

M. **Duty to Provide Information (submittal of information)** [15A NCAC 02Q .0508(i)(9)]
1. The Permittee shall furnish to the DAQ, in a timely manner, any reasonable information that the Director may request in **writing** to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit.
2. The Permittee shall furnish the DAQ copies of records required to be kept by the permit when such copies are requested by the Director. For information claimed to be confidential, the Permittee may furnish such records directly to the EPA upon request along with a claim of confidentiality.

N. **Duty to Supplement** [15A NCAC 02Q .0507(f)]
The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the DAQ. The Permittee shall also provide additional information as necessary to address any requirement that becomes applicable to the facility after the date a complete permit application was submitted but prior to the release of the draft permit.

O. **Retention of Records** [15A NCAC 02Q .0508(f) and 02Q .0508(l)]
The Permittee shall retain records of all required monitoring data and supporting information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring information, and copies of all reports required by the permit. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request.

P. **Compliance Certification** [15A NCAC 02Q .0508(n)]
The Permittee shall submit to the DAQ and the EPA (Air Enforcement Branch, EPA, Region 4, 61 Forsyth Street SW, Atlanta, GA 30303 or through the EPA CEDRI) postmarked on or before March 1 a compliance certification (for the preceding calendar year) by a responsible official with all terms and conditions in the permit (including emissions limitations, standards, or work practices), except for conditions identified as being State-enforceable Only. It shall be the responsibility of the current owner to submit a compliance certification for the entire year regardless of who owned the facility during the year. The compliance certification shall comply with additional requirements as may be specified under Sections 114(a)(3) or 504(b) of the Federal Clean Air Act. The compliance certification shall specify:
1. the identification of each term or condition of the permit that is the basis of the certification;
2. the compliance status (with the terms and conditions of the permit for the period covered by the certification);
3. whether compliance was continuous or intermittent;
4. the method(s) used for determining the compliance status of the source during the certification period;
5. each deviation and take it into account in the compliance certification; and
6. as possible exceptions to compliance, any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 (CAM) occurred.

Q. **Certification by Responsible Official** [15A NCAC 02Q .0520]
A responsible official shall certify the truth, accuracy, and completeness of any application form, report, or compliance certification required by this permit. All certifications shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

R. **Permit Shield for Applicable Requirements** [15A NCAC 02Q .0512]
1. Compliance with the terms and conditions of this permit shall be deemed compliance with applicable requirements, where such applicable requirements are included and specifically identified in the permit as of the date of permit issuance.
2. A permit shield shall not alter or affect:
   a. the power of the Commission, Secretary of the Department, or Governor under NCGS 143-215.3(a)(12), or EPA under Section 303 of the Federal Clean Air Act;
   b. the liability of an owner or operator of a facility for any violation of applicable requirements prior to the effective date of the permit or at the time of permit issuance;
   c. the applicable requirements under Title IV; or

d. the ability of the Director or the EPA under Section 114 of the Federal Clean Air Act to obtain information to determine compliance of the facility with its permit.

3. A permit shield does not apply to any change made at a facility that does not require a permit or permit revision made under 15A NCAC 02Q .0523.
4. A permit shield does not extend to minor permit modifications made under 15A NCAC 02Q .0515.

S. **Termination, Modification, and Revocation of the Permit** [15A NCAC 02Q .0519]
The Director may terminate, modify, or revoke and reissue this permit if:
1. the information contained in the application or presented in support thereof is determined to be incorrect;
2. the conditions under which the permit or permit renewal was granted have changed;
3. violations of conditions contained in the permit have occurred;
4. the EPA requests that the permit be revoked under 40 CFR 70.7(g) or 70.8(d); or
5. the Director finds that termination, modification, or revocation and reissuance of the permit is necessary to carry out the purpose of NCGS Chapter 143, Article 21B.

T. **Insignificant Activities** [15A NCAC 02Q .0503]
Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement. The Permittee shall have available at the facility at all times and made available to an authorized representative upon request, documentation, including calculations, if necessary, to demonstrate that an emission source or activity is insignificant.

U. **Property Rights** [15A NCAC 02Q .0508(i)(8)]
This permit does not convey any property rights in either real or personal property or any exclusive privileges.

V. **Inspection and Entry** [15A NCAC 02Q .0508(l) and NCGS 143-215.3(a)(2)]
1. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the DAQ, or an authorized representative, to perform the following:
   a. enter the Permittee's premises where the permitted facility is located or emissions-related activity is conducted, or where records are kept under the conditions of the permit;
   b. have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
   c. inspect at reasonable times and using reasonable safety practices any source, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
   d. sample or monitor substances or parameters, using reasonable safety practices, for the purpose of assuring compliance with the permit or applicable requirements at reasonable times.

   Nothing in this condition shall limit the ability of the EPA to inspect or enter the premises of the Permittee under Section 114 or other provisions of the Federal Clean Air Act.
2. No person shall refuse entry or access to any authorized representative of the DAQ who requests entry for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such authorized representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

W. **Annual Fee Payment** [15A NCAC 02Q .0508(i)(10)]
1. The Permittee shall pay all fees in accordance with 15A NCAC 02Q .0200.
2. Payment of fees may be by check or money order made payable to the N.C. Department of Environmental Quality. Annual permit fee payments shall refer to the permit number.
3. If, within 30 days after being billed, the Permittee fails to pay an annual fee, the Director may initiate action to terminate the permit under 15A NCAC 02Q .0519.

X. **Annual Emission Inventory Requirements** [15A NCAC 02Q .0207]
The Permittee shall report by **June 30 of each year** the actual emissions of each air pollutant listed in 15A NCAC 02Q .0207(a) from each emission source within the facility during the previous calendar year. The report shall be in or on such form as may be established by the Director. The accuracy of the report shall be certified by a responsible official of the facility.

Y. **Confidential Information** [15A NCAC 02Q .0107 and 02Q .0508(i)(9)]
Whenever the Permittee submits information under a claim of confidentiality pursuant to 15A NCAC 02Q .0107, the Permittee may also submit a copy of all such information and claim directly to the EPA upon request. All requests for confidentiality must be in accordance with 15A NCAC 02Q .0107.

Z. **Construction and Operation Permits** [15A NCAC 02Q .0100 and .0300]
A construction and operating permit shall be obtained by the Permittee for any proposed new or modified facility or emission source which is not exempted from having a permit prior to the beginning of construction or modification, in accordance with all applicable provisions of 15A NCAC 02Q .0100 and .0300.

AA. **Standard Application Form and Required Information** [15A NCAC 02Q .0505 and .0507]
The Permittee shall submit applications and required information in accordance with the provisions of 15A NCAC 02Q .0505 and .0507.

BB. **Financial Responsibility and Compliance History** [15A NCAC 02Q .0507(d)(3)]
The DAQ may require an applicant to submit a statement of financial qualifications and/or a statement of substantial compliance history.

CC. **Refrigerant Requirements (Stratospheric Ozone and Climate Protection)** [15A NCAC 02Q .0501(d)]
1. If the Permittee has appliances or refrigeration equipment, including air conditioning equipment, which use Class I or II ozone-depleting substances such as chlorofluorocarbons and hydrochlorofluorocarbons listed as refrigerants in 40 CFR Part 82 Subpart A Appendices A and B, the Permittee shall service, repair, and maintain such equipment according to the work practices, personnel certification requirements, and certified recycling and recovery equipment specified in 40 CFR Part 82 Subpart F.
2. The Permittee shall not knowingly vent or otherwise release any Class I or II substance into the environment during the repair, servicing, maintenance, or disposal of any such device except as provided in 40 CFR Part 82 Subpart F.
3. The Permittee shall comply with all reporting and recordkeeping requirements of 40 CFR 82.166. Reports shall be submitted to the EPA or its designee as required.

DD. **Prevention of Accidental Releases - Section 112(r)** [15A NCAC 02Q .0508(h)]
If the Permittee is required to develop and register a Risk Management Plan with EPA pursuant to Section 112(r) of the Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

EE. **National Emission Standards Asbestos – 40 CFR Part 61, Subpart M** [15A NCAC 02D .1110]
The Permittee shall comply with all applicable standards for demolition and renovation activities pursuant to the requirements of 40 CFR Part 61, Subpart M. The permittee shall not be required to obtain a modification of this permit in order to perform the referenced activities.

FF. **Title IV Allowances** [15A NCAC 02Q .0508(i)(1)]
This permit does not limit the number of Title IV allowances held by the Permittee, but the Permittee may not use allowances as a defense to noncompliance with any other applicable requirement. The Permittee's emissions may not exceed any allowances that the facility lawfully holds under Title IV of the Federal Clean Air Act.

GG. **Air Pollution Emergency Episode** [15A NCAC 02D .0300]
Should the Director of the DAQ declare an Air Pollution Emergency Episode, the Permittee will be required to operate in accordance with the Permittee's previously approved Emission Reduction Plan or, in the absence of an approved plan, with the appropriate requirements specified in 15A NCAC 02D .0300.

HH. **Registration of Air Pollution Sources** [15A NCAC 02D .0202]
The Director of the DAQ may require the Permittee to register a source of air pollution. If the Permittee is required to register a source of air pollution, this registration and required information will be in accordance with 15A NCAC 02D .0202(b).

II. **Ambient Air Quality Standards** [15A NCAC 02D .0501(c)]
In addition to any control or manner of operation necessary to meet emission standards specified in this permit, any source of air pollution shall be operated with such control or in such manner that the source shall not cause the ambient air quality standards in 15A NCAC 02D .0400 to be exceeded at any point beyond the premises on which the source is located. When controls more stringent than named in the applicable emission standards in this permit are required to prevent violation of

the ambient air quality standards or are required to create an offset, the permit shall contain a condition requiring these controls.

JJ. **General Emissions Testing and Reporting Requirements** [15A NCAC 02Q .0508(i)(16)]
Emission compliance testing shall be by the procedures of Section .2600, except as may be otherwise required in Rules .0524, .1110, or .1111 of Subchapter 02D. If emissions testing is required by this permit or the DAQ or if the Permittee submits emissions testing to the DAQ to demonstrate compliance for emission sources subject to Rules .0524, .1110, or .1111, the Permittee shall provide and submit all notifications, conduct all testing, and submit all test reports in accordance with the requirements of 15A NCAC 02D .0524, .1110, or .1111, as applicable. Otherwise, if emissions testing is required by this permit or the DAQ or if the Permittee submits emissions testing to the DAQ to demonstrate compliance, the Permittee shall perform such testing in accordance with 15A NCAC 02D .2600 and follow the procedures outlined below:

1. The owner or operator of the source shall arrange for air emission testing protocols to be provided to the Director prior to air pollution testing. Testing protocols are not required to be pre-approved by the Director prior to air pollution testing. The Director shall review air emission testing protocols for pre-approval prior to testing if requested by the owner or operator at least **45 days** before conducting the test.
2. Any person proposing to conduct an emissions test to demonstrate compliance with an applicable standard shall notify the Director at least **15 days** before beginning the test so that the Director may at his option observe the test.
3. The owner or operator of the source shall arrange for controlling and measuring the production rates during the period of air testing. The owner or operator of the source shall ensure that the equipment or process being tested is operated at the production rate that best fulfills the purpose of the test. The individual conducting the emission test shall describe the procedures used to obtain accurate process data and include in the test report the average production rates determined during each testing period.
4. Two copies of the final air emission test report shall be submitted to the Director not later than **30 days** after sample collection unless otherwise specified in the specific conditions. The owner or operator may request an extension to submit the final test report. The Director shall approve an extension request if he finds that the extension request is a result of actions beyond the control of the owner or operator.
    a. The Director shall make the final determination regarding any testing procedure deviation and the validity of the compliance test. The Director may:
        i. Allow deviations from a method specified under a rule in this Section if the owner or operator of the source being tested demonstrates to the satisfaction of the Director that the specified method is inappropriate for the source being tested.
        ii. Prescribe alternate test procedures on an individual basis when he finds that the alternative method is necessary to secure more reliable test data.
        iii. Prescribe or approve methods on an individual basis for sources or pollutants for which no test method is specified in 15A NCAC 02D .2600 if the methods can be demonstrated to determine compliance of permitted emission sources or pollutants.
    b. The Director may authorize the DAQ to conduct independent tests of any source subject to a rule in 15A NCAC 02D to determine the compliance status of that source or to verify any test data submitted relating to that source. Any test conducted by the Division of Air Quality using the appropriate testing procedures described in 15A NCAC 02D .2600 has precedence over all other tests.

KK. **Reopening for Cause** [15A NCAC 02Q .0517]

1. A permit shall be reopened and revised under the following circumstances:
    a. additional applicable requirements become applicable to a facility with remaining permit term of three or more years;
    b. additional requirements (including excess emission requirements) become applicable to a source covered by Title IV;
    c. the Director or EPA finds that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or
    d. the Director or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
2. Any permit reopening shall be completed or a revised permit issued within 18 months after the applicable requirement is promulgated. No reopening is required if the effective date of the requirement is after the expiration of the permit term unless the term of the permit was extended pursuant to 15A NCAC 02Q .0513(c).
3. Except for the state-enforceable only portion of the permit, the procedures set out in 15A NCAC 02Q .0507, .0521, or .0522 shall be followed to reissue the permit. If the State-enforceable only portion of the permit is reopened, the procedures in 15A NCAC 02Q .0300 shall be followed. The proceedings shall affect only those parts of the permit for which cause to reopen exists.

4. The Director shall notify the Permittee at least 60 days in advance of the date that the permit is to be reopened, except in cases of imminent threat to public health or safety the notification period may be less than 60 days.
5. Within 90 days, or 180 days if the EPA extends the response period, after receiving notification from the EPA that a permit needs to be terminated, modified, or revoked and reissued, the Director shall send to the EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate.

LL. **Reporting Requirements for Non-Operating Equipment** [15A NCAC 02Q .0508(i)(16)]
The Permittee shall maintain a record of operation for permitted equipment noting whenever the equipment is taken from and placed into operation. When permitted equipment is not in operation, the requirements for testing, monitoring, and recordkeeping are suspended until operation resumes.

MM. **Fugitive Dust Control Requirement** [15A NCAC 02D .0540]
As required by 15A NCAC 02D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 02D .0540(f).

"Fugitive dust emissions" means particulate matter from process operations that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas, stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

NN. **Specific Permit Modifications** [15A NCAC 02Q .0501 and .0523]
1. For modifications made pursuant to 15A NCAC 02Q .0501(b)(2), the Permittee shall file a Title V Air Quality Permit Application for the air emission source(s) and associated air pollution control device(s) on or before 12 months after commencing operation.
2. For modifications made pursuant to 15A NCAC 02Q .0501(c)(2), the Permittee shall not begin operation of the air emission source(s) and associated air pollution control device(s) until a Title V Air Quality Permit Application is filed and a construction and operation permit following the procedures of Section .0500 (except for Rule .0504 of this Section) is obtained.
3. For modifications made pursuant to 502(b)(10), in accordance with 15A NCAC 02Q .0523(a)(1)(C), the Permittee shall notify the Director and EPA (Air Permitting Branch, EPA, Region 4, 61 Forsyth Street SW, Atlanta, GA 30303 or through the EPA CEDRI) in writing at least seven days before the change is made.
    a. The written notification shall include:
        i. a description of the change at the facility;
        ii. the date on which the change will occur;
        iii. any change in emissions; and
        iv. any permit term or condition that is no longer applicable as a result of the change.
    b. In addition to this notification requirement, with the next significant modification or Air Quality Permit renewal, the Permittee shall submit a page "E5" of the application forms signed by the responsible official verifying that the application for the 502(b)(10) change/modification, is true, accurate, and complete. Further note that modifications made pursuant to 502(b)(10) do not relieve the Permittee from satisfying preconstruction requirements.

OO. **Third Party Participation and EPA Review** [15A NCAC 02Q .0521, .0522 and .0525(7)]
For permits modifications subject to 45-day review by the federal EPA, EPA's decision to not object to the proposed permit is considered final and binding on the EPA and absent a third party petition, the failure to object is the end of EPA's decision-making process with respect to the revisions to the permit. The time period available to submit a public petition pursuant to 15A NCAC 02Q .0518 begins at the end of the 45-day EPA review period.