AIR QUALITY PROGRAM
836 Fulton Street
Pittsburgh, PA 15233-2124

Title V Operating Permit
& Federally Enforceable State Operating Permit

Issued To:	**Chambers Development Company, Inc.**	**ACHD Permit #:**	**0215-OP25**
Facility:	**Monroeville Landfill** **600 Thomas Street** **Monroeville, PA 15146**	**Date of Issuance:**	**June 26, 2025**
		Expiration Date:	**June 25, 2030**
		Renewal Date:	**expiration date – 6mo.**

Digitally signed by JoAnn Truchan, PE
Date: 2025.06.26 13:20:37 -04'00'

Issued By:

JoAnn Truchan, P.E.
Program Manager, Engineering

Digitally signed by Hafeez Ajenifuja
Date: 2025.06.26 11:28:25 -04'00'

Prepared By:

Hafeez Ajenifuja
Air Quality Engineer

[This page left intentionally blank]

TABLE OF CONTENTS

AMENDMENTS:

DATE SECTION(S)

I. CONTACT INFORMATION

Facility Location:	**Monroeville Landfill** 600 Thomas Street Monroeville, PA 15146
Permittee/Owner:	**Chambers Development Company, Inc.** 600 Thomas Street Monroeville, PA 15146
Permittee/Operator: **(if not Owner)**	**same as owner**
Responsible Official: **Title:** **Company:** **Address:**	**Adam Finley** Director of Disposal Operations **Chambers Development Company, Inc.** Monroeville, PA 15146
Telephone Number: **E-mail Address:**	(716) 492-3402 afinley.@awm.com
Facility Contact: **Title:** **Telephone Number:** **Fax Number:** **E-mail Address:**	**Rick A. Smitsky** Area Engineering Manager- Western PA (724) 350-1931 (412) 317-9054 rsmitsky@wm.com

AGENCY ADDRESSES:

ACHD Engineer: **Title:** **Telephone Number:** **Fax Number:** **E-mail Address:**	**Permitting Engineer** Air Quality Engineer 412-578-8142 412-578-8144 permitting.engineer@alleghenycounty.us
ACHD Contact:	**Program Manager, Engineering** **Allegheny County Health Department** Air Quality Program 836 Fulton Street Pittsburgh, PA 15233-2124 aqpermits@alleghenycounty.us
EPA Contact:	**ECAD – Air Section** **Environmental Protection Agency** Four Penn Center 1600 John F. Kennedy Boulevard Mail Code 3ED21 Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

Chambers Development Company, Inc. operates Monroeville Landfill, a municipal solid waste landfill, in Monroeville, Pennsylvania. The landfill is approximately 390 total acres in surface area, comprised of two closed areas (old west and western) and two active areas (eastern and southwest expansion). The landfill has an active landfill gas (LFG) collection system with one enclosed ground flare to control the landfill gas emissions collected from closed and active disposal areas. The landfill also has small motor oil, hydraulic oil, and diesel fuel storage tanks; landfill operations (land clearing and earth moving) and construction; and vehicular traffic.

The primary source of emissions at the facility is the landfill itself, which emits VOCs and HAPs as defined in CAA Section 112. Since the landfill was modified after May 30, 1991, and has a design capacity greater than 2.5 million megagrams, this facility is subject to the requirements of the requirements of the Federal Plan Requirement for Municipal Solid Waste Landfills, 40 CFR 62 Subpart OOO. Pursuant to the requirements of 40 CFR 62, Subpart OOO. Pursuant to the requirements of 40 CFR 60, Subpart WWW, landfills having design capacities greater than or equal to 2.5 million megagrams must obtain a Part 70 operating permit. This facility is therefore subject to Part 70 major source operating permit requirements of §2103.20. This notwithstanding, Monroeville Landfill is a major source of CO emission and minor source for remaining criteria pollutant and HAP emissions, as defined at §2102.20 (Definitions) of Article XXI.

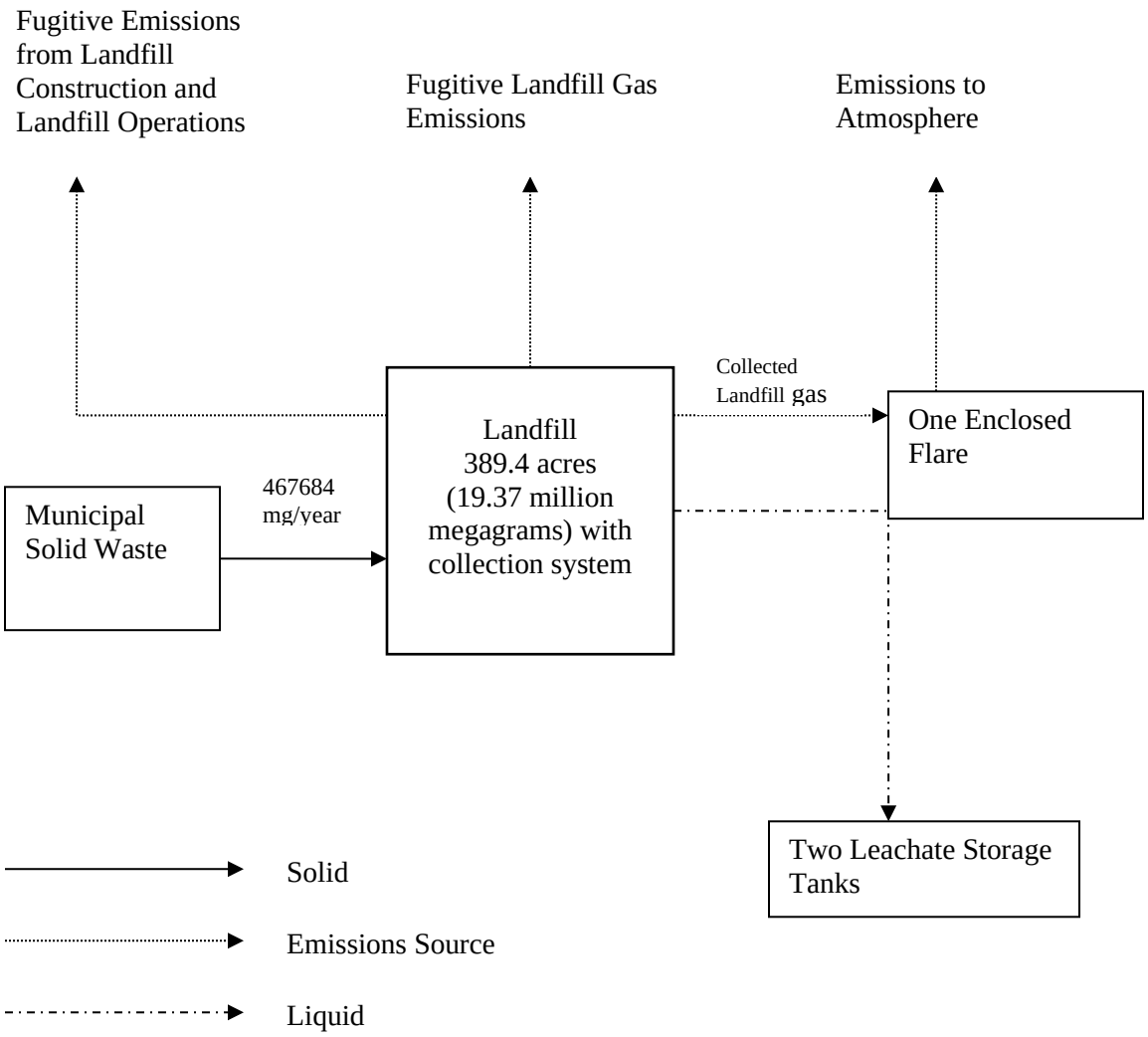
Monroeville Landfill Gas, LLC, a subsidiary of Montauk Renewables, operates a gas-to-energy plant located on the property of Monroeville Landfill, though it has no affiliation with the landfill itself. The facility processes landfill gas from Monroeville Landfill to meet specific pipeline standards and injects the treated gas into a natural gas pipeline. Any process waste gas—primarily composed of CO_2, nitrogen, oxygen, and small amounts of residual methane and NMOC—is directed to the enclosed flare at Monroeville Landfill. The gas-to-energy plant is not included in this permit.

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	Source Description	Control Device(s)	Maximum Capacity	Fuel/Raw Material	Stack I.D.
F005	Municipal Solid Waste Landfill	Collection System and One Enclosed Ground Flare	389.4 acres (19.37 million megagrams)	Municipal & Non-hazardous Solid Waste	S001
S001	One Enclosed Ground Flare	None	4,000scfm	Landfill Gas	S001
F001	Landfill Construction and Operations	Fugitive Dust Control Measures	Cell preparation 37,372 tons per year	Earth (soil/rock)	etc.

Process Flow Diagram



DECLARATION OF POLICY

Pollution prevention is recognized as the preferred strategy (over pollution control) for reducing risk to air resources. Accordingly, pollution prevention measures should be integrated into air pollution control programs wherever possible, and the adoption by sources of cost-effective compliance strategies, incorporating pollution prevention, is encouraged. The Department will give expedited consideration to any permit modification request based on pollution prevention principles.

The permittee is subject to the terms and conditions set forth below. These terms and conditions constitute provisions of *Allegheny County Health Department Rules and Regulations, Article XXI Air Pollution Control*. The subject equipment has been conditionally approved for operation. The equipment shall be operated in conformity with the plans, specifications, conditions, and instructions which are part of your application, and may be periodically inspected for compliance by the Department. In the event that the terms and conditions of this permit or the applicable provisions of Article XXI conflict with the application for this permit, these terms and conditions and the applicable provisions of Article XXI shall prevail. Additionally, nothing in this permit relieves the permittee from the obligation to comply with all applicable Federal, State and Local laws and regulations.

III. GENERAL CONDITIONS – Major Source

1. Prohibition of Air Pollution (§2101.11)

a. It shall be a violation of this permit to fail to comply with, or to cause or assist in the violation of, any requirement of this permit, or any order or permit issued pursuant to authority granted by Article XXI. The permittee shall not willfully, negligently, or through the failure to provide and operate necessary control equipment or to take necessary precautions, operate any source of air contaminants in such manner that emissions from such source:

1) Exceed the amounts permitted by this permit or by any order or permit issued pursuant to Article XXI;
2) Cause an exceedance of the ambient air quality standards established by Article XXI §2101.10; or
3) May reasonably be anticipated to endanger the public health, safety, or welfare.

b. It shall be a violation of this permit to operate, or allow to be operated, any source in such manner as to allow the release of air contaminants into the open air or to cause air pollution as defined in Article XXI, except as is explicitly permitted by this permit or Article XXI.

2. Definitions (§2101.20)

a. Except as specifically provided in this permit, terms used retain the meaning accorded them under the applicable provisions and requirements of Article XXI or the applicable federal or state regulation. Whenever used in this permit, or in any action taken pursuant to this permit, the words and phrases shall have the meanings stated, unless the context clearly indicates otherwise.

b. Unless specified otherwise in this permit or in the applicable regulation, the term "*year*" shall mean any twelve (12) consecutive months.

3. Conditions (§2102.03.c)

It shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02, for any person to fail to comply with any terms or conditions set forth in this permit.

4. Certification (§2102.01)

Any report, or compliance certification submitted under this permit shall contain written certification by a responsible official as to truth, accuracy, and completeness. This certification and any other certification required under this permit shall be signed by a responsible official of the source, and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

5. Transfers (§2102.03.e)

This permit shall not be transferable from one person to another, except in accordance with Article XXI §2102.03.e and in cases of change-in-ownership which are documented to the satisfaction of the Department and shall be valid only for the specific sources and equipment for which this permit was issued. The transfer of permits in the case of change-in-ownership may be made consistent with the administrative permit amendment procedure of Article XXI §2103.14.b. The required documentation and fee must be received by the Department at least 30 days before the intended transfer date.

6. Term (§2103.12.e, §2103.13.a)

a. This permit shall remain valid for five (5) years from the date of issuance, or such other shorter period if required by the Clean Air Act, unless revoked. The terms and conditions of an expired permit shall automatically continue pending issuance of a new operating permit provided the permittee has submitted a timely and complete application and paid applicable fees required under Article XXI Part C, and the Department through no fault of the permittee is unable to issue or deny a new permit before the expiration of the previous permit.

b. Expiration. Permit expiration terminates the source’s right to operate unless a timely and complete renewal application has been submitted consistent with the requirements of Article XXI Part C.

7. Need to Halt or Reduce Activity Not a Defense (§2103.12.f.2)

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.

8. Property Rights (§2103.12.f.4)

This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Duty to Provide Information (§2103.12.f.5)

a. The permittee shall furnish to the Department in writing within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of any records required to be kept by the permit.

b. Upon cause shown by the permittee the records, reports, or information, or a particular portion thereof, claimed by the permittee to be confidential shall be submitted to the Department in accordance with the requirements of Article XXI, §2101.07.d.4. Information submitted to the Department under a claim of confidentiality, shall be available to the US EPA and the PADEP upon request and without restriction. Upon request of the permittee the confidential information may be submitted to the USEPA and PADEP directly. Emission data or any portions of any draft, proposed, or issued permits shall not be considered confidential.

10. Modification of Section 112(b) Pollutants which are VOCs or PM_{10} (§2103.12.f.7)

Except where precluded under the Clean Air Act or federal regulations promulgated under the Clean Air Act, if this permit limits the emissions of VOCs or PM_{10} but does not limit the emissions of any hazardous air pollutants, the mixture of hazardous air pollutants which are VOCs or PM_{10} can be modified so long as no permit emission limitations are violated. A log of all mixtures and changes shall be kept and reported to the Department with the next report required after each change.

11. Right to Access (§2103.12.h.2)

Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized Department and other federal, state, county, and local government representatives to:

a. Enter upon the permittee's premises where a permitted source is located or an emissions-related activity is conducted, or where records are or should be kept under the conditions of the permit;

b. Have access to, copy and remove, at reasonable times, any records that must be kept under the conditions of the permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

d. As authorized by either Article XXI or the Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements.

12. Certification of Compliance (§2103.12.h.5,)

a. The permittee shall submit on an annual basis, certification of compliance with all terms and conditions contained in this permit, including emission limitations, standards, or work practices. The certification of compliance shall be made consistent with General Condition III.4 above and shall include the following information at a minimum:

1) The identification of each term or condition of the permit that is the basis of the certification;
2) The compliance status;
3) Whether any noncompliance was continuous or intermittent;
4) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with the provisions of this permit; and
5) Such other facts as the Department may require to determine the compliance status of the source.

b. Annual certification of compliance forms must be submitted to the Administrator as well as the

Department by March 2 of each year for the time period beginning January 1 and ending December 31 of the previous year. The next report shall be due March 2, 2026 for the time period beginning on the issuance date of this permit through December 31, 2025. Compliance certifications should be submitted online through the ACHD Air Quality Regulated Entities Portal (REP). If REP is not available, written notice should be sent to the Department at aqreports@alleghenycounty.us.

13. Record Keeping Requirements (§2103.12.j.1)

a. The permittee shall maintain records of required monitoring information that include the following:

1) The date, place as defined in the permit, and time of sampling or measurements;
2) The date(s) analyses were performed;
3) The company or entity that performed the analyses;
4) The analytical techniques or methods used;
5) The results of such analyses; and
6) The operating parameters existing at the time of sampling or measurement.

b. The permittee shall maintain and make available to the Department, upon request, records including computerized records that may be necessary to comply with the reporting and emission statements in Article XXI §2108.01.e. Such records may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions.

14. Retention of Records (§2103.12.j.2)

The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

15. Reporting Requirements (§2103.12.k)

a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.

b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.

d. Semiannual reports required by this permit shall be submitted to the Department as follows:

1) One semiannual report is due by July 31 of each year for the time period beginning January 1 and ending June 30.
2) One semiannual report is due by February 1 of each year for the time period beginning July 1 and ending December 31.

3) The next semiannual report shall be due July 31, 2025, for the time period beginning on the issuance date of this permit through June 30, 2025.

e. Reports should be submitted online through the ACHD Air Quality Regulated Entities Portal (REP). If REP is not available, written notice should be sent to the Department at aqreports@alleghenycounty.us.

16. Severability Requirement (§2103.12.l)

The provisions of this permit are severable, and if any provision of this permit is determined by a court of competent jurisdiction to be invalid or unenforceable, such a determination will not affect the remaining provisions of this permit.

17. Existing Source Reactivations (§2103.13.d)

The permittee shall not reactivate any source that has been out of operation or production for a period of one year or more unless the permittee has submitted a reactivation plan request to, and received a written reactivation plan approval from, the Department. Existing source reactivations shall meet all requirements of Article XXI §2103.13.d.

18. Administrative Permit Amendment Procedures (§2103.14.b)

An administrative permit amendment may be made consistent with the procedures of Article XXI §2103.14.b and §2103.24.b. Administrative permit amendments are not authorized for any amendment precluded by the Clean Air Act or the regulations there under.

19. Revisions and Minor Permit Modification Procedures (§2103.14.c)

Sources may apply for revisions and minor permit modifications on an expedited basis in accordance with Article XXI §2103.14.c and §2103.24.a.

20. Significant Permit Modifications (§2103.14.d)

Significant permit modifications shall meet all requirements of the applicable subparts of Article XXI, Part C, including those for applications, fees, public participation, review by affected States, and review by EPA, as they apply to permit issuance and permit renewal. The approval of a significant permit modification, if the entire permit has been reopened for review, shall commence a new full five (5) year permit term. The Department shall take final action on all such permits within nine (9) months following receipt of a complete application.

21. Duty to Comply (§2103.12.f.1)

The permittee shall comply with all permit conditions and all other applicable requirements at all times. Any permit noncompliance constitutes a violation of the Clean Air Act, the Air Pollution Control Act, and Article XXI and is grounds for any and all enforcement action, including, but not limited to, permit termination, revocation and reissuance, or modification, and denial of a permit renewal application.

22. Renewals (§2103.13.b.)

Renewal of this permit is subject to the same fees and procedural requirements, including those for public

participation and affected State and EPA review, that apply to initial permit issuance. The application for renewal shall be submitted at least six (6) months but not more than eighteen (18) months prior to expiration of this permit. The application shall also include submission of a supplemental compliance review as required by Article XXI §2102.01.

23. Reopenings for Cause (§2103.12.f.3, §2103.25.a)

a. This permit shall be reopened and reissued under any of the following circumstances:

1) Additional requirements under the Clean Air Act become applicable to a major source with a remaining permit term of three (3) or more years. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended solely due to the failure of the Department to act on a permit renewal application in a timely fashion.
2) Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into this permit.
3) The Department or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.
4) The Administrator or the Department determines that this permit must be reissued or revoked to assure compliance with the applicable requirements.

b. This permit may be modified; revoked, reopened, and reissued; or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes, for changes that are provided for in this permit.

24. Reopenings for Cause by the EPA (§2103.25.b)

This permit may be modified, reopened and reissued, revoked or terminated for cause by the EPA in accordance with procedures specified in Article XXI §2103.25.b.

25. Annual Operating Permit Maintenance Fee (§2103.40)

In each year during the term of this permit, on or before December 31 of each year for the next calendar year, the permittee shall submit to the Department, in addition to any other applicable administration fees, an Annual Operating Permit Maintenance Fee in accordance with §2103.40. by check or money order payable to the “Allegheny County Air Pollution Control Fund” in the amount specified in the fee schedule applicable at that time.

26. Annual Major Source Emissions Fees Requirements (§2103.41)

No later than September 1 of each year, the permittee shall pay an annual emission fee in accordance with Article XXI §2103.41 for each ton of a regulated pollutant (except for carbon monoxide) actually emitted from the source. The permittee shall not be required to pay an emission fee for emissions of more than 4,000 tons of each regulated pollutant. The emission fee shall be increased in each year after 1995 by the

percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

27. Other Requirements not Affected (§2104.08, §2105.02)

Compliance with the requirements of this permit shall not in any manner relieve any person from the duty to fully comply with any other applicable Federal, State, or County statute, rule, regulation, or the like, including but not limited to the odor emission standards under Article XXI §2104.04, any applicable NSPSs, NESHAPs, MACTs, or Generally Achievable Control Technology (GACT) standards now or hereafter established by the EPA, and any applicable requirements of BACT or LAER as provided by Article XXI, any condition contained in any applicable Installation or Operating Permit and/or any additional or more stringent requirements contained in an order issued to such person pursuant to Article XXI Part I.

28. Termination of Operation (§2108.01.a)

In the event that operation of any source of air contaminants is permanently terminated, the person responsible for such source shall so report, in writing, to the Department within 60 days of such termination.

29. Tests by the Department (§2108.02.d)

Notwithstanding any tests conducted pursuant to Article XXI §2108.02, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the person responsible for such source or equipment shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.

30. Other Rights and Remedies Preserved (§2109.02.b)

Nothing in this permit shall be construed as impairing any right or remedy now existing or hereafter created in equity, common law or statutory law with respect to air pollution, nor shall any court be deprived of such jurisdiction for the reason that such air pollution constitutes a violation of this permit.

31. Enforcement and Emergency Orders (§2109.03, §2109.05)

a. The person responsible for this source shall be subject to any and all enforcement and emergency orders issued to it by the Department in accordance with Article XXI §2109.03, §2109.04 and §2109.05.

b. Upon request, any person aggrieved by an Enforcement Order or Emergency Order shall be granted a hearing as provided by Article XXI §2109.03.d; provided however, that an Emergency Order shall continue in full force and effect notwithstanding the pendency of any such appeal.

c. Failure to comply with an Enforcement Order or immediately comply with an Emergency Order shall be a violation of this permit thus giving rise to the remedies provided by Article XXI §2109.02.

32. Penalties, Fines, and Interest (§2109.07.a)

A source that fails to pay any fee required under this permit when due shall pay a civil penalty of 50% of

the fee amount, plus interest on the fee amount computed in accordance with Article XXI §2109.06.a.4 from the date the fee was required to be paid. In addition, the source may have this permit revoked for failure to pay any fee required.

33. Appeals (§2109.10)

In accordance with State Law and County regulations and ordinances, any person aggrieved by an order or other final action of the Department issued pursuant to Article XXI or any unsuccessful petitioner to the Administrator under Article XXI Part C, Subpart 2, shall have the right to appeal the action to the Director in accordance with the applicable County regulations and ordinances.

34. Risk Management (§2104.08, 40 CFR Part 68)

Should this stationary source, as defined in 40 CFR Part 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in Part 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by General Condition III.12 above.

35. Operational Flexibility (§2103.14.a)

a. The owner or operator shall not make any changes at this source, including trades of increases and decreases in emissions within the permitted source, without first obtaining a permit revision for such changes, unless:

1) The changes do not require an Installation Permit under §2102.04 of this Article or violate the terms of an Operating Permit or an Installation Permit;
2) The permit specifically allows for changes that do not cause specific emissions increases greater than a de minimis emission increase, and the changes do not exceed such emissions increase allowed under the permit, in accordance with General Condition III.36 below;
3) The changes do not violate major source applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements; and
4) By no later than seven (7) days prior to the date on which the implementation of the proposed change is commenced, a written notification is submitted to the Department, for attachment to the Department's copy of the relevant permit, which includes:

i. A brief description of the change within the permitted source;
ii. The date on which the change will occur;
iii. The pollutants emitted; and
iv. Any change in emissions.

36. De Minimis Emission Increases (§2103.14.e)

a. The Department may allow, as a condition of an Operating Permit, *de minimis* emission increases from a new or existing source up to the amounts authorized in condition III.36.d below.

b. A *de minimis* increase may not occur at a source if it either:

1) Increases the emissions of a pollutant regulated under Section 112 of the Clean Air Act (42 U.S.C.A. §7412) except as authorized in conditions III.36.d.4) and 5) below;

2) Subjects the source to the permit requirements of Article XXI, §§2102.05, 2102.06, or 2102.07 (relating to prevention of significant deterioration of air quality and major new source and major modification review); or
3) Violates an applicable requirement of this Article, the state Air Pollution Control Act, the Clean Air Act, or the regulations promulgated under the Air Pollution Control Act or the Clean Air Act.

c. The permittee shall provide the Department with 7 days prior written notice of any *de minimis* emission increase. The notice shall identify and describe the pollutants that will be emitted as a result of the *de minimis* emissions increase and provide emission rates in tons/year and in terms necessary to establish compliance consistent with any applicable requirement. The Department may disapprove or condition the *de minimis* emission increase at any time.

d. Except as provided in condition III.36.e below, the maximum *de minimis* emission rate increases, as measured in tons/year, that may be authorized in the permit during the term of the permit are:

1) Four tons of carbon monoxide from an emissions unit during the term of the permit and 20 tons of carbon monoxide at the source during the term of the permit;
2) One ton of NO_X from an emissions unit during the term of the permit and 5 tons of NO_X at the source during the term of the permit;
3) One and six-tenths tons of oxides of sulfur from an emissions unit during the term of the permit and 8.0 tons of oxides of sulfur at the source during the term of the permit;
4) Six-tenths of a ton of PM_{10} from an emissions unit during the term of the permit and 3.0 tons of PM_{10} at the source during the term of the permit. This shall include emissions of a pollutant regulated under Section 112 of the Clean Air Act unless precluded by the Clean Air Act, the regulations thereunder, or Article XXI; and
5) One ton of VOC's from an emissions unit during the term of the permit and 5 tons of VOC's at the source during the term of the permit. This shall include emissions of a pollutant regulated under Section 112 of the Clean Air Act unless precluded by the Clean Air Act, the regulations thereunder, or Article XXI.

e. The Department may allow, as a condition of an operating permit, installation of the minor sources exempted under §2102.04.a.5 of Article XXI.

f. *De minimis* emission threshold levels cannot be met by offsetting emission increases with emission decreases at the same emissions unit.

37. Circumvention (§2101.14)

For purposes of determining compliance with the provisions of this permit and Article XXI, no credit shall be given to any person for any device or technique, including but not limited to the operation of any source with unnecessary amounts of air, the combining of separate sources except as specifically permitted by Article XXI and the Department, the use of stacks exceeding Good Engineering Practice height as defined by regulations promulgated by the US EPA at 40 CFR §§51.100 and 51.110 and Subpart I, and other dispersion techniques, which without reducing the amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise violate the provisions of this Article; except that, for purposes of determining compliance with Article §2104.04 concerning odors, credit for such devices or techniques, except for the use of a masking agent, may be given.

38. Duty to Supplement and Correct Relevant Facts (§2103.11.d.2)

a. The permittee shall provide additional information as necessary to address requirements that become applicable to the source after the date it files a complete application but prior to the Department taking action on the permit application.

b. The permittee shall provide supplementary fact or corrected information upon becoming aware that incorrect information has been submitted or relevant facts were not submitted.

c. Except as otherwise required by this permit and Article XXI, the Clean Air Act, or the regulations thereunder, the permittee shall submit additional information as necessary to address changes occurring at the source after the date it files a complete application but prior to the Department taking action on the permit application.

d. The applicant shall submit information requested by the Department which is reasonably necessary to evaluate the permit application.

39. Effect (§2102.03.g.)

a. Except as specifically otherwise provided under Article XXI, Part C, issuance of a permit pursuant to Article XXI Part B or Part C shall not in any manner relieve any person of the duty to fully comply with the requirements of this permit, Article XXI or any other provision of law, nor shall it in any manner preclude or affect the right of the Department to initiate any enforcement action whatsoever for violations of this permit or Article XXI, whether occurring before or after the issuance of such permit. Further, except as specifically otherwise provided under Article XXI Part C the issuance of a permit shall not be a defense to any nuisance action, nor shall such permit be construed as a certificate of compliance with the requirements of this permit or Article XXI.

40. Installation Permits (§2102.04.a.1.)

It shall be a violation of this permit giving rise to the remedies set forth in Article XXI Part I for any person to install, modify, replace, reconstruct, or reactivate any source or air pollution control equipment which would require an installation permit or permit modification in accordance with Article XXI Part B or Part C.

IV. SITE LEVEL TERMS AND CONDITIONS

1. Reporting of Upset Conditions (§2103.12.k.2)

The permittee shall promptly report all deviations from permit requirements, including those attributable to upset conditions as defined in Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

2. Visible Emissions (§2104.01.a)

Except as provided for by Article XXI §2108.01.d pertaining to a cold start, no person shall operate, or allow to be operated, any source in such manner that the opacity of visible emissions from a flue or process fugitive emissions from such source, excluding uncombined water:

a. Equal or exceed an opacity of 20% for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or,

b. Equal or exceed an opacity of 60% at any time.

3. Odor Emissions (§2104.04) *(County-only enforceable)*

No person shall operate, or allow to be operated, any source in such manner that emissions of malodorous matter from such source are perceptible beyond the property line of such source. In addition, the Department may pursue the remedies provided by §2109.02 for any violation of this Section.

4. Materials Handling (§2104.05)

The permittee shall not conduct, or allow to be conducted, any materials handling operation in such manner that emissions from such operation are visible at or beyond the property line.

5. Operation and Maintenance (§2105.03)

All air pollution control equipment required by this permit or any order under Article XXI, and all equivalent compliance techniques approved by the Department, shall be properly installed, maintained, and operated consistently with good air pollution control practice.

6. Open Burning (§2105.50)

No person shall conduct, or allow to be conducted, the open burning of any material, except where the Department has issued an Open Burning Permit to such person in accordance with Article XXI §2105.50 or where the open burning is conducted solely for the purpose of non-commercial preparation of food for human consumption, recreation, light, ornament, or provision of warmth for outside workers, and in a manner which contributes a negligible amount of air contaminants.

7. Shutdown of Control Equipment (§2108.01.b)

a. In the event any air pollution control equipment is shut down for reasons other than a breakdown, the person responsible for such equipment shall report, in writing, to the Department the intent to shut down such equipment at least 24 hours prior to the planned shutdown. Notwithstanding the submission of such report, the equipment shall not be shut down until the approval of the

Department is obtained; provided, however, that no such report shall be required if the source(s) served by such air pollution control equipment is also shut down at all times that such equipment is shut down.

b. The Department shall act on all requested shutdowns as promptly as possible. If the Department does not take action on such requests within ten (10) calendar days of receipt of the notice, the request shall be deemed denied, and upon request, the permittee of the affected source shall have a right to appeal in accordance with the provisions of Article XI.

c. The prior report required by Site Level Condition IV.7.a above shall include:

1) Identification of the specific equipment to be shut down, its location and permit number (if permitted), together with an identification of the source(s) affected;
2) The reasons for the shutdown;
3) The expected length of time that the equipment will be out of service;
4) Identification of the nature and quantity of emissions likely to occur during the shutdown;
5) Measures, including extra labor and equipment, which will be taken to minimize the length of the shutdown, the amount of air contaminants emitted, or the ambient effects of the emissions;
6) Measures which will be taken to shut down or curtail the affected source(s) or the reasons why it is impossible or impracticable to shut down or curtail the affected source(s) during the shutdown; and
7) Such other information as may be required by the Department.

d. Written notice required by this condition should be submitted online through the ACHD Air Quality Regulated Entities Portal (REP). If REP is not available, written notice should be sent to the Department at aqreports@alleghenycounty.us.

8. Breakdowns (§2108.01.c)

a. In the event that any air pollution control equipment, process equipment, or other source of air contaminants breaks down in such manner as to have a substantial likelihood of causing the emission of air contaminants in violation of this permit, or of causing the emission into the open air of potentially toxic or hazardous materials, the person responsible for such equipment or source shall immediately, but in no event later than sixty (60) minutes after the commencement of the breakdown, notify the Department of such breakdown and shall, as expeditiously as possible but in no event later than seven (7) days after the original notification, provide written notice to the Department.

b. To the maximum extent possible, all oral and written notices required shall include all pertinent facts, including:

1) Identification of the specific equipment which has broken down, its location and permit number (if permitted), together with an identification of all related devices, equipment, and other sources which will be affected.
2) The nature and probable cause of the breakdown.
3) The expected length of time that the equipment will be inoperable or that the emissions will continue.
4) Identification of the specific material(s) which are being, or are likely to be emitted, together with a statement concerning its toxic qualities, including its qualities as an irritant, and its potential for causing illness, disability, or mortality.

5) The estimated quantity of each material being or likely to be emitted.
6) Measures, including extra labor and equipment, taken or to be taken to minimize the length of the breakdown, the amount of air contaminants emitted, or the ambient effects of the emissions, together with an implementation schedule.
7) Measures being taken to shut down or curtail the affected source(s) or the reasons why it is impossible or impractical to shut down the source(s), or any part thereof, during the breakdown.

c. Notices required shall be updated, in writing, as needed to advise the Department of changes in the information contained therein. In addition, any changes concerning potentially toxic or hazardous emissions shall be reported immediately. All additional information requested by the Department shall be submitted as expeditiously as practicable.

d. Unless otherwise directed by the Department, the Department shall be notified whenever the condition causing the breakdown is corrected or the equipment or other source is placed back in operation by no later than 9:00 AM on the next County business day. Within seven (7) days thereafter, written notice shall be submitted pursuant to Paragraphs a and b above.

e. Breakdown reporting shall not apply to breakdowns of air pollution control equipment which occur during the initial startup of said equipment, provided that emissions resulting from the breakdown are of the same nature and quantity as the emissions occurring prior to startup of the air pollution control equipment.

f. In no case shall the reporting of a breakdown prevent prosecution for any violation of this permit or Article XXI.

g. Written notice required by this condition should be submitted online through the ACHD Air Quality Regulated Entities Portal (REP). If REP is not available, written notice should be sent to the Department at aqreports@alleghenycounty.us.

9. Cold Start (§2108.01.d)

In the event of a cold start on any fuel-burning or combustion equipment, except stationary internal combustion engines and combustion turbines used by utilities to meet peak load demands, the person responsible for such equipment shall report in writing to the Department the intent to perform such cold start at least 24 hours prior to the planned cold start. Such report shall identify the equipment and fuel(s) involved and shall include the expected time and duration of the startup. Upon written application from the person responsible for fuel-burning or combustion equipment which is routinely used to meet peak load demands and which is shown by experience not to be excessively emissive during a cold start, the Department may waive these requirements and may instead require periodic reports listing all cold starts which occurred during the report period. The Department shall make such waiver in writing, specifying such terms and conditions as are appropriate to achieve the purposes of Article XXI. Such waiver may be terminated by the Department at any time by written notice to the applicant. The written notification of cold start from the facility should be submitted online through the ACHD Air Quality Regulated Entities Portal (REP). If REP is not available, written notice should be sent to the Department at aqreports@alleghenycounty.us.

10. Emissions Inventory Statements (§2108.01.e & g)

a. Emissions inventory statements in accordance with Article XXI §2108.01.e shall be submitted to the Department by March 15 of each year for the preceding calendar year. The Department may

require more frequent submittals if the Department determines that more frequent submissions are required by the EPA or that analysis of the data on a more frequent basis is necessary to implement the requirements of Article XXI or the Clean Air Act.

b. The failure to submit any report or update within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

11. Orders (§2108.01.f)

In addition to meeting the requirements of General Condition III.28 and Site Level Conditions IV.7 through IV.10 above, inclusive, the person responsible for any source shall, upon order by the Department, report to the Department such information as the Department may require in order to assess the actual and potential contribution of the source to air quality. The order shall specify a reasonable time in which to make such a report.

12. Violations (§2108.01.g)

The failure to submit any report or update thereof required by General Condition III.28 and Site Level Conditions IV.7 through IV.11 above, inclusive, within the time specified, the knowing submission of false information, or the willful failure to submit a complete report shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

13. Emissions Testing (§2108.02)

a. **Orders:** The person responsible for any source shall, upon order by the Department, conduct, or cause to be conducted, such emissions tests as specified by the Department within such reasonable time as is specified by the Department. Test results shall be submitted in writing to the Department within 20 days after completion of the tests, unless a different period is specified in the Department's order. Emissions testing shall comply with all applicable requirements of Article XXI §2108.02.e.

b. **Tests by the Department:** Notwithstanding any tests conducted pursuant to this permit, the Department or another entity designated by the Department may conduct emissions testing on any source or air pollution control equipment. At the request of the Department, the permittee shall provide adequate sampling ports, safe sampling platforms and adequate utilities for the performance of such tests.

c. **Testing Requirements:** No later than 45 days prior to conducting any tests required by this permit, the person responsible for the affected source shall submit for the Department's approval a written test protocol explaining the intended testing plan, including any deviations from standard testing procedures, the proposed operating conditions of the source during the test, calibration data for specific test equipment and a demonstration that the tests will be conducted under the direct supervision of persons qualified by training and experience satisfactory to the Department to conduct such tests. In addition, at least 30 days prior to conducting such tests, the person responsible shall notify the Department in writing of the time(s) and date(s) on which the tests will be conducted and shall allow Department personnel to observe such tests, record data, provide pre-weighed filters, analyze samples in a County laboratory and to take samples for independent analysis. Test results shall be comprehensively and accurately reported in the units of measurement specified by the applicable emission limitations of this permit.

d. Test methods and procedures shall conform to the applicable reference method set forth in this permit or Article XXI Part G, or where those methods are not applicable, to an alternative sampling and testing procedure approved by the Department consistent with Article XXI §2108.02.e.2.

e. **Violations:** The failure to perform tests as required by this permit or an order of the Department, the failure to submit test results within the time specified, the knowing submission of false information, the willful failure to submit complete results, or the refusal to allow the Department, upon presentation of a search warrant, to conduct tests, shall be a violation of this permit giving rise to the remedies provided by Article XXI §2109.02.

14. Abrasive Blasting (§2105.51)

a. Except where such blasting is a part of a process requiring an operating permit , no person shall conduct or allow to be conducted, abrasive blasting or power tool cleaning of any surface, structure, or part thereof, which has a total area greater than 1,000 square feet unless such abrasive blasting complies with all applicable requirements of Article XXI §2105.51.

b. In addition to complying with all applicable provisions of §2105.51, no person shall conduct, or allow to be conducted, abrasive blasting of any surface unless such abrasive blasting also complies with all other applicable requirements of Article XXI unless such requirements are specifically addressed by §2105.51.

15. Asbestos Abatement (§2105.62, §2105.63)

In the event of removal, encasement, or encapsulation of Asbestos-Containing Material (ACM) at a facility or in the event of the demolition of any facility, the permittee shall comply with all applicable provisions of Article XXI §2105.62 and §2105.63.

16. Protection of Stratospheric Ozone (40 CFR Part 82)

a. Permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:

1) All containers in which a Class I or Class II substance is stored or transported, all products containing a Class I substance, and all products directly manufactured with a process that uses a Class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106;
2) The placement of the required warning statement must comply with the requirements pursuant to §82.108;
3) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110; and
4) No person may modify, remove or interfere with the required warning statement except as described in §82.112.

b. Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F:

1) Persons opening appliances for maintenance, service, repair or disposal must comply with the prohibitions and required practices pursuant to §82.154 and §82.156;
2) Equipment used during the maintenance, service, repair or disposal of appliances must

comply with the standards for recycling and recovery equipment pursuant to §82.158;

3) Persons maintaining, servicing, repairing or disposing of appliances, must be certified by an approved technician certification program pursuant to §82.161;
4) Persons disposing of small appliances, motor vehicle air conditioners (MVAC) and MVAC-like appliances, must comply with the record keeping requirements pursuant to §82.166;
5) Owners of commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156; and
6) Owners or operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.

c. If the permittee manufactures, transforms, destroys, imports or exports a Class I or Class II substance, the Permittee is subject to all the requirements as specified in 40 CFR Part 82, Subpart A (Production and Consumption Controls).

d. If the permittee performs a service on a motor vehicle that involves an ozone-depleting substance, refrigerant or regulated substitute substance in the MVAC, the Permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B (Servicing of Motor Vehicle Air Conditioners).

e. The permittee may switch from any ozone-depleting substance to any alternative that is listed as acceptable in the Significant New Alternatives Policy (SNAP) program promulgated pursuant to 40 CFR Part 82, Subpart G.

17. Volatile Organic Compound Storage Tanks (§2105.12.a)

No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia or greater under actual storage conditions in any aboveground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with State or local fire codes, National Fire Prevention Association guidelines, or other national consensus standard approved in writing by the Department. Petroleum liquid storage vessels that are used to store produced crude oil and condensate prior to lease custody transfer are exempt from these requirements.

18. Permit Source Premises (§2105.40)

a. **General:** No person shall operate, or allow to be operated, any source for which a permit is required by Article XXI Part C in such manner that emissions from any open land, roadway, haul road, yard, or other premises located upon the source or from any material being transported within such source or from any source-owned access road, haul road, or parking lot over five (5) parking spaces:

1) Are visible at or beyond the property line of such source;
2) Have an opacity of 20% or more for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or
3) Have an opacity of 60% or more at any time.

b. **Deposition on Other Premises:** Visible emissions from any solid or liquid material that has been deposited by any means from a source onto any other premises shall be considered emissions from such source within the meaning of Site Level Condition IV.18.a above.

19. Parking Lots and Roadways (§2105.42)

a. The permittee shall not maintain for use, or allow to be used, any parking lot over 50 parking spaces or used by more than 50 vehicles in any day or any other roadway carrying more than 100 vehicles in any day or 15 vehicles in any hour in such manner that emissions from such parking lot or roadway:

1) Are visible at or beyond the property line;
2) Have an opacity of 20% or more for a period or periods aggregating more than three (3) minutes in any 60 minute period; or
3) Have an opacity of 60% or more at any time.

b. Visible emissions from any solid or liquid material that has been deposited by any means from a parking lot or roadway onto any other premises shall be considered emissions from such parking lot or roadway.

c. Site Level Condition IV.19.a above shall apply during any repairs or maintenance done to such parking lot or roadway.

d. Notwithstanding any other provision of this permit, the prohibitions of Site Level Condition IV.19 may be enforced by any municipal or local government unit having jurisdiction over the place where such parking lots or roadways are located. Such enforcement shall be in accordance with the laws governing such municipal or local government unit. In addition, the Department may pursue the remedies provided by Article XXI §2109.02 for any violations of Site Level Condition IV.19.

20. Permit Source Transport (§2105.43)

a. No person shall transport, or allow to be transported, any solid or liquid material outside the boundary line of any source for which a permit is required by Article XXI Part C in such manner that there is any visible emission, leak, spill, or other escape of such material during transport.

b. Notwithstanding any other provision of this permit, the prohibitions of Site Level Condition IV.20 may be enforced by any municipal or local government unit having jurisdiction over the place where such visible emission, leak, spill, or other escape of material during transport occurs. Such enforcement shall be in accordance with the laws governing such municipal or local government unit. In addition, the Department may pursue the remedies provided by Article XXI §2109.02 for any violation of Site Level Condition IV.20.

21. Construction and Land Clearing (§2105.45)

a. No person shall conduct, or allow to be conducted, any construction or land clearing activities in such manner that the opacity of emissions from such activities:

1) Equal or exceed 20% for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or
2) Equal or exceed 60% at any time.

b. Notwithstanding any other provision of this permit, the prohibitions of Site Level Condition IV.21 may be enforced by any municipal or local government unit having jurisdiction over the place where such construction or land clearing activities occur. Such enforcement shall be in accordance

with the laws governing such municipal or local government unit. In addition, the Department may pursue the remedies provided by Article XXI §2109.02 for any violations of Site Level Condition IV.21.

22. Mining (§2105.46)

No person shall conduct, or allow to be conducted, any mining activities in such manner that emissions from such activities:

a. Are visible at or beyond the property line;

b. Have an opacity of 20% or more for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period; or,

c. Have an opacity of 60% or more at any time.

23. Demolition (§2105.47)

a. No person shall conduct, or allow to be conducted, any demolition activities in such manner that the opacity of the emissions from such activities equal or exceed 20% for a period or periods aggregating more than three (3) minutes in any 60 minute period.

b. Notwithstanding any other provisions of this permit, the prohibitions of Site Level Condition IV.23 may be enforced by any municipal or local government unit having jurisdiction over the place where such demolition activities occur. Such enforcement shall be in accordance with the laws governing such municipal or local government unit. In addition, the Department may pursue the remedies provided by Article XXI §2109.02 for any violations of Site Level Condition IV.23.

24. Fugitive Emissions (§2105.49)

The person responsible for a source of fugitive emissions, in addition to complying with all other applicable provisions of this permit shall take all reasonable actions to prevent fugitive air contaminants from becoming airborne. Such actions may include, but are not limited to:

a. The use of asphalt, oil, water, or suitable chemicals for dust control;

b. The paving and maintenance of roadways, parking lots and the like;

c. The prompt removal of earth or other material which has been deposited by leaks from transport, erosion or other means;

d. The adoption of work or other practices to minimize emissions;

e. Enclosure of the source; and

f. The proper hooding, venting, and collection of fugitive emissions.

25. Episode Plans (§2106.01 and Article XXI Part F)

The permittee shall upon written request of the Department, submit a source curtailment plan, consistent

with good industrial practice and safe operating procedures, designed to reduce emissions of air contaminants during air pollution episodes. Such plans shall meet the requirements of Article XXI §2106.02 and Article XXI Part F.

26. New Source Performance Standards (§2105.05)

a. It shall be a violation of this permit giving rise to the remedies provided by §2109.02 of Article XXI for any person to operate, or allow to be operated, any source in a manner that does not comply with all requirements of any applicable NSPS now or hereafter established by the EPA, except if such person has obtained from EPA a waiver pursuant to Section 111 or Section 129 of the Clean Air Act or is otherwise lawfully temporarily relieved of the duty to comply with such requirements.

b. Any person who operates, or allows to be operated, any source subject to any NSPS shall conduct, or cause to be conducted, such tests, measurements, monitoring and the like as is required by such standard. All notices, reports, test results and the like as are required by such standard shall be submitted to the Department in the manner and time specified by such standard. All information, data and the like which is required to be maintained by such standard shall be made available to the Department upon request for inspection and copying.

27. National Emission Standards for Hazardous Air Pollutants (§2104.08)

The permittee shall comply with each applicable emission limitation, work practice standard, and operation and maintenance requirement of 40 CFR Part 63, Subpart AAAA – *National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfill*. The following provisions apply to the landfill and its equipment (source F008), the enclosed flare #1 (source S001).

28. Greenhouse Gas Reporting (40 CFR Part 98)

If the facility emits 25,000 metric tons or more of carbon dioxide equivalent (CO_2e) in any 12-month period, the facility shall submit reports to the US EPA in accordance with 40 CFR Part 98.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

A. Process P001: Municipal Solid Waste Landfill

Process Description: Municipal Solid Waste Landfill
Facility ID: F005
Max. Design Rate: 19.37 million megagrams
Capacity: 389.4 acres
Raw Materials: Solid Waste
Control Device: Landfill Off-gas Collection System and Control System Consisting of one Enclosed Ground Flare

1. Restrictions:

a. The permittee shall maintain and operate an active landfill off-gas collection system and control system at all times, except during emergency situations requiring shutdown or periodically when shutdowns are required to perform routine maintenance. [RACT Order No. 253, 1.1; §2103.12; §2103.12.a.2.B].

b. The permittee shall equip each gas collection well at the landfill expansion with a throttling valve to enable adjustment of the gas collection rate. [IP #02150-I001,V.A.1.a).1, issued March 25, 1999; §2103.12.a.D]

c. The average daily waste acceptance rate at the landfill shall not exceed 1800 tons per day. The average daily waste acceptance rate shall be determined on a quarterly basis. [IP #0215-I001,V.A.1.c.1, issued March 25, 1999; §2103.12.f; §2103.12.a.2.D]

d. The permittee shall collect and control MSW landfill emissions that meets the following conditions: [§62.16714(a); §2103.12.a.2.B]

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.

e. Collection system. The permittee shall install a gas collection and control system meeting the requirements in Conditions V.A.1.e.1) through V.A.1.e.3) below and Condition V.A.1.f below at each MSW landfill meeting the requirements in Condition V.A.1.d above: [§62.16714(b; §2103.12.a.2.B)].

1) **Collection system.** Install and start up a collection and control system that captures the gas generated within the landfill within thirty 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 §62.16724(d)(4), or

ii. 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 §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 five years or more if active, or two 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 Conditions V.A.1.e.2)i, V.A.1.e.2)ii, and V.A.1.e.2)iv
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.

f. **Control system.** The permit shall 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. [§62.16714(c); §2103.12.a.2.B].

1) 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% 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 Condition V.A.2.i below. 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.
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 40 CFR 62 Subpart OOO 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.

2) 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 Condition V.A.1.f.1) above or V.A.1.f.2).
3) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of Condition V.A.1.e above or V.A.1.f above. 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 Condition V.A.1.e above or V.A.1.f above.

g. **Emissions.** The permittee shall either install a collection and control system as provided in Conditions V.A.1.e above and V.A.1.f above or calculate an initial NMOC emission rate for the landfill using the procedures specified in Conditions V.A.2.a below through V.A.2.f below. The NMOC emission rate must be recalculated annually, except as provided in Condition V.A.5.d.3) below. [§62.16714(e); §2103.12.2.B].

1) If the calculated NMOC emission rate is less than 34 megagrams per year, the permittee must:

i. Submit an annual NMOC emission rate report according to Condition V.A.5.d below, except as provided in Condition V.A.5.d.3) below; and
ii. Recalculate the NMOC emission rate annually using the procedures specified in Condition V.A.5.b below 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 Condition V.A.1.g.1)ii above, is equal to or greater than 34 megagrams per year, the permittee must either: comply with Conditions V.A.1.e above and V.A.1.f above; calculate NMOC emissions using the next higher tier in Condition V.A.2.a below; or conduct a surface emission monitoring demonstration using the procedures specified in Condition V.A.2.f below.
B. If the landfill is permanently closed, a closure report must be submitted to the Department as provided in Condition V.A.5.g below, except for the exemption allowed under Condition V.A.7.e.4) below.

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 permittee must either: submit a collection and control system design plan prepared by a professional engineer to the Department within one year as specified in Condition V.A.5.e below, except for exemptions allowed under Condition V.A.7.e.3) below; calculate NMOC emissions using a higher tier in Conditions V.A.2.a through V.A.2.f below; or conduct a surface emission monitoring demonstration using the procedures specified in Condition V.A.2.f below.

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 permittee shall either: submit a collection and control system design plan as specified in Condition V.A.5.e below, except for exemptions allowed under Condition V.A.7.e.3) below; or calculate NMOC emissions using a higher tier in Conditions V.A.2.a through V.A.2.f below.

h. **Removal criteria.** The collection and control system may be capped, removed, or decommissioned if the following criteria are met: [§62.16714(f); §2103.12.a.2.B].

1) The landfill is a closed landfill (as defined in §62.16730). A closure report must be submitted to the Department as provided in Condition V.A.5.g below.
2) The collection and control system has been in operation a minimum of fifteen years, or the landfill permittee demonstrates that the gas collection and control system will be unable to operate for fifteen years due to declining gas flow.
3) Following the procedures specified in Condition V.A.2.g below, 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 ninety days apart, and no more than 180 days apart.
4) For the closed landfill subcategory (as defined in §62.16730), following the procedures specified in Condition V.A.2.g below, 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 ninety days apart, and no more than 180 days apart.

i. The permittee shall comply with the provisions for the operational standards in this section (as well as the provisions in §62.16720 and §62.16722), or the operational standards in §63.1958 of this chapter (as well as the provisions in §63.1960 and §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 §62.16714(b) and (c). Once the permittee begins to comply with the provisions of §63.1958 of this chapter, the permittee must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section. [§62.16716(a); §2103.12.a.2.B].

j. The permittee shall follow the specifications for active collection systems below: [§62.16728; §2103.12.a.2.B].

1) The permittee seeking to comply with Condition V.A.1.e above shall 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 Department. [§62.16728(a)]

i. 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 the entire collection system.

ii. The sufficient density of gas collection devices determined in Condition V.A.1.j.1)i above 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.

iii. The placement of gas collection devices determined in Condition V.A.1.j.1)i above must control all gas producing areas, except as provided by Conditions V.A.1.j.1)iii.A below and V.A.1.j.1)iii.B below.

A. Any segregated area of asbestos or nondegradable material may be excluded from

collection if documented as provided in Condition V.A.4.c below. 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 Department upon request.

B. 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% 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 Department 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.

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

Qi = 2kLoMi(e^-kti)(CNMOC)(3.6x10^-9) (Eq. 7)

Where:
Qi = NMOC emission rate from the ith section, megagrams per year.
k = Methane generation rate constant, year^-1.
Lo = Methane generation potential, cubic meters per megagram solid waste.
Mi = Mass of the degradable solid waste in the ith section, megagram.
ti = Age of the solid waste in the ith section, years.
CNMOC = Concentration of NMOC, parts-per-million by volume.
3.6 × 10^-9 = Conversion factor

(2) If the permittee 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 Conditions V.A.2.a below through V.A.2.f below or Equation 7 in Condition V.A.1.j.1)iii.B(1) above of §62 Subpart OOO .

C. The values for k and CNMOC 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 CNMOC provided in Conditions V.A.2.a below through V.A.2.f below or the alternative values from Conditions V.A.2.a below through V.A.2.f below 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 Condition V.A.1.j.1)iii.A above.

2) The permittee seeking to comply with Condition V.A.1.e above shall construct the gas collection devices using the following equipment or procedures: [§62.16728(b)]

i. 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.

ii. 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.

iii. 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.

3) The permittee seeking to comply with Condition V.A.1.f above must convey the landfill gas to a control system in compliance with Condition V.A.1.f above 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: [§62.16728(c)]

i. For existing collection systems, the flow data must be used to project the maximum flow rate.

k. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55° C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The permittee shall monitor each well monthly for temperature and nitrogen or oxygen level. [RACT Order No. 253, Condition 1.7; §2103.12.a.2.D]

l. Emissions from the municipal solid waste landfill gas collection system (P001) shall not exceed the following at any time: [§2103.12.a.2.D; IP #0215-I001,V.A.1.2.c, issued March 25, 1999]

TABLE V-A-1: Municipal Solid Waste Landfill Emission Limitations

POLLUTANT	ANNUAL EMISSION LIMIT (tons/year)*
Volatile Organic Compounds (VOC)	20.03
Non-Methane Organic Compounds (NMOC)	51.35

*A year is defined as any consecutive twelve-month period.

m. The average facility collection system efficiency of the active off-gas collection system shall be a minimum of 75% at all times. [§2103.12.a.2.B; RACT Order No. 253, Condition 1.2]

2. Testing Requirements:

The permittee shall calculate the landfill NMOC emission rate and conduct a surface emission monitoring demonstration according to the provisions 62 Subpart OOO below.

a. **NMOC Emission rate**. The permittee must calculate the NMOC emission rate using either Equation 1 provided in Condition V.A.2.a.1) below or Equation 2 provided in Condition V.A.2.a.2) below. Both Equation 1 and Equation 2 may be used if the actual year-to-year solid waste acceptance rate is known, as specified in Condition V.A.2.a.1) below, for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in Condition V.A.2.a.2) below, 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 CNMOC. For landfills located in geographical areas with a thirty-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. [§62.16718(a)(1); §63.1959(a)(1); §2103.12.h].

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

$M_{NMOC} = \sum_{i=1}^{n} 2\,kLoMi(e^{-kt_i})(C_{NMOC})(3.6 \times 10^{-9})$ (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 ith 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.

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 Mi if documentation of the nature and amount of such wastes is maintained.

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

$M_{NMOC} = 2LoR\left(e^{-kc} - e^{-kt}\right)C_{NMOC}\ (3.6 \times 10^{-9})$ (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.

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.

b. **Tier 1**. The permittee must compare the calculated NMOC mass emission rate to the standard of 34 megagrams per year. [§62.16718(a)(2); §63.1959(a)(2); §2103.12.h].

1) If the NMOC emission rate calculated in Condition V.A.2.a above is less than 34 megagrams per year, then the permittee must submit an NMOC emission rate report according to Condition V.A.5.d below and must recalculate the NMOC mass emission rate annually as required under Condition V.A.1.g above.
2) If the NMOC emission rate calculated in Condition V.A.2.a above is equal to or greater than 34 megagrams per year, then the permittee must either:

i. Submit a gas collection and control system design plan within one year as specified in Condition V.A.5.e below and install and operate a gas collection and control system within thirty months according to Conditions V.A.1.e above and V.A.1.f above;
ii. Determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the Tier 2 procedures provided in Condition V.A.2.c below; or
iii. Determine a site-specific methane generation rate constant and recalculate the NMOC emission rate using the Tier 3 procedures provided in Condition V.A.2.d below.

c. **Tier 2.** The permittee must determine the site-specific NMOC concentration using the following sampling procedure. The permittee must install at least two sample probes per hectare, evenly distributed over the landfill surface that has retained waste for at least two years. If the landfill is larger than 25 hectares in area, only fifty 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 permittee 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 permittee 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 CNMOC as carbon to CNMOC 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. [§62.16718(a)(3); §63.1959(a)(3); §2103.12.h]

1) Within sixty days after the date of determining the NMOC concentration and corresponding NMOC emission rate, the permittee must submit the results according

to §62.16724(j)(2).

2) The permittee must recalculate the NMOC mass emission rate using Equation 1 or Equation 2 provided in Condition V.A.2.a.1) above or V.A.2.a.2) above using the average site-specific NMOC concentration from the collected samples instead of the default value provided in Condition V.A.2.a above.

   i. If the resulting NMOC mass emission rate is less than 34 megagrams per year, then the permittee must submit a periodic estimate of NMOC emissions in an NMOC emission rate report according to Condition V.A.5.d below and must recalculate the NMOC mass emission rate annually as required under §62.16714(e). The site specific NMOC concentration must be retested every five years using the methods specified in this section.

3) 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 permittee must either:

   i. Submit a gas collection and control system design plan within one year as specified in Condition V.A.5.e and install and operate a gas collection and control system within thirty months according to §62.16714(b) and (c);
   ii. 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 Condition V.A.2.d below; or
   iii. Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Condition V.A.2.f below.

d. **Tier 3.** The site-specific methane generation rate constant must be determined using the procedures provided in EPA Method 2E of Part 60. The permittee must estimate the NMOC mass emission rate using Equation 1 or Equation 2 in Condition V.A.2.a.1) above or V.A.2.a.2) above of this section and using a site-specific methane generation rate constant, and the site-specific NMOC concentration as determined in Condition V.A.2.c above instead of the default values provided in Condition V.A.2.a above. The permittee must compare the resulting NMOC mass emission rate to the standard of 34 megagrams per year. [§62.16718(a)(4); §63.1959(a)(4)].

1) 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 permittee must either:

   i. Submit a gas collection and control system design plan within one year as specified in Condition V.A.5.e and install and operate a gas collection and control system within thirty months according to §62.16714(b) and (c); or
   ii. Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Condition V.A.2.f below.

2) If the NMOC mass emission rate is less than 34 megagrams per year, then the permittee must recalculate the NMOC mass emission rate annually using Equation 1 or Equation 2 in Condition V.A.2.a above 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 Condition V.A.5.d below. 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.

e. **Alternative Methods**. The permittee 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 Conditions V.A.2.c above and V.A.2.d above if the method has been approved by the Department. [§62.16718(a)(5); §63.1959(a)(5); §2103.12.h]

f. **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 permittee 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 Condition V.A.2.f.8) below. [§62.16718(a)(6); §2103.12.h]

1) 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 §62.16720(d).
2) 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.
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 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.

   i. The permittee must use a wind barrier, like a funnel, when on-site average wind speed exceeds four miles per hour or two meters per second or gust exceeding ten miles per hour. Average on-site wind speed must also be determined in an open area at five-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 twenty-five miles per hour.

4) The permittee seeking to comply with the Tier 4 provisions in Condition V.A.2.f above of 40 CFR Part 62, Subpart OOO must maintain records of surface emission monitoring as provided in Condition V.A.4.f below and submit a Tier 4 surface emissions report as provided in Condition V.A.5.e.4)iii below.

5) If there is any measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the permittee must submit a gas collection and control system design plan within one year of the first measured concentration of methane of 500 parts per million or greater from the surface of the landfill according to Condition V.A.5.e and install and operate a gas collection and control system according to Conditions V.A.1.e and V.A.1.f within thirty 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.
6) 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 permittee must continue quarterly surface emission monitoring using the methods specified in §62 Subpart OOO.
7) 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 permittee must conduct annual surface emission monitoring using the methods specified in §62 Subpart OOO.

8) 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:

i. 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.

ii. 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.

g. After the installation and startup of a collection and control system in compliance with 40 CFR Part 62, Subpart OOO, the permittee must calculate the NMOC emission rate for purposes of determining when the system can be capped, removed, or decommissioned as provided in Condition V.A.1.h above, using Equation 3: [§62.16718(b); §63.1959(c); §2103.12.h]

$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$ (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 permittee 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 permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Department.

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

h. When calculating emissions for Prevention of Significant Deterioration purposes, the permittee 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 §51.166 or 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. [§62.16718(c); §2103.12.h]

i. For the performance test required in Condition V.A.2.f.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 thirty-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. [§62.16718(d); §63.1959(e); §2103.12.h]

1) **Performance test results.** Within sixty days after the date of completing each performance test (as defined in §60.8 of this chapter), the permittee must submit the results of the performance tests required in Condition V.A.2.g above or V.A.2.i above, including any associated fuel analyses to the Department.

j. For the performance test required in Condition V.A.1.f above, 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 Department as provided in Condition V.A.5.e.2) below. 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%. 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 permittee must divide the NMOC concentration as carbon by 6 to convert the CNMOC as carbon to CNMOC as hexane. Equation 4 must be used to calculate efficiency: [§62.16718(e); §63.1959(d); §2103.12.h]

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

Where:

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

1) **Performance test submission.** Within sixty days after the date of completing each performance test (as defined in §60.8 of this chapter), the permittee must submit the results of the performance tests, including any associated fuel analyses.

k. The permittee with a design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3 must either comply with Condition V.A.2.k.2) or calculate an NMOC emission rate for the landfill using the procedures specified in Conditions V.A.2.a through V.A.2.f above. The NMOC emission rate must be recalculated annually, except as provided in Condition V.A.5.q.3)i below. [§63.1959(b); §2103.12.h]

1) If the calculated NMOC emission rate is less than 50 Mg/yr., the permittee must:

i. Submit an annual NMOC emission rate emission report to the Administrator, except as provided for in Condition V.A.5.q.ii below; and
ii. Recalculate the NMOC emission rate annually using the procedures specified in Condition V.A.2.a above until such time as the calculated NMOC emission rate is equal to or greater than 50 Mg/yr., or the landfill is closed.

A. If the calculated NMOC emission rate, upon initial calculation or annual recalculation required in Condition V.A.2.k above is equal to or greater than 50 Mg/yr., the permittee must either: comply with Condition V.A.2.k.2) below or calculate NMOC emissions using the next higher tier in Conditions V.A.2.a through V.A.2.f above.
B. If the landfill is permanently closed, a closure report must be submitted to the Administrator as provided for in Condition V.A.5.t below.

2) If the calculated NMOC emission rate is equal to or greater than 50 Mg/yr. using Tier 1, 2, or 3 procedures, the permittee shall either:

i. Submit a collection and control system design plan prepared by a professional engineer to the Administrator within one year as specified in Condition V.A.5.r below or calculate NMOC emissions using the next higher tier in Conditions V.A.2.a through V.A.2.f above. The collection and control system must meet the requirements in Conditions V.A.2.k.2)ii below and V.A.2.k.2)iii below.

ii. **Collection system.** Install and start up a collection and control system that captures the gas generated within the landfill as required by Conditions V.A.2.k.2)ii.B or V.A.2.k.2)ii.C below and V.A.2.k.2)iii below within thirty months after:

A. The first annual report in which the NMOC emission rate equals or exceeds 50 Mg/yr., unless Tier 2 or Tier 3 sampling demonstrates that the NMOC emission rate is less than 50 Mg.
B. An active collection system must:

(1) 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;
(2) 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 five years or more if active; or two years or more if closed or at final grade;
(3) Collect gas at a sufficient extraction rate; and
(4) Be designed to minimize off-site migration of subsurface gas.

C. A passive collection system must:

(1) Comply with the provisions specified in Conditions V.A.2.k.2)ii.B(1), V.A.2.k.2)ii.B(2), and V.A.2.k.2)ii.B(3) above; and
(2) 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 §258.40 of this chapter.

iii. **Control system**. Route all the collected gas to a control system that complies with the requirements in either Condition V.A.2.k.2)iii.A or V.A.2.k.2)iii.B below.

A. 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% oxygen. The reduction efficiency or ppmv 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 Condition

V.A.2.l below. 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.

(1) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.
(2) 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 Conditions V.A.3.h through V.A.3.k below;

B. 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-British thermal unit (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 Condition V.A.2.k.2)iii.A above.

C. All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of Condition V.A.2.k.2)iii.A above. 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 Condition V.A.2.k.2)iii.A above.

l. The performance tests required in Condition V.A.2.k.2)iii.A above must be conducted under such conditions as the Department specifies to the permittee based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown unless specified by the Administrator. The permittee may not conduct performance tests during periods of malfunction. The permittee must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the permittee shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. [§63.1959(f); §2103.12.h]

m. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 and Article XXI §2108.02. [§2103.12.h.1]

3. Monitoring Requirements:

a. Except as provided in Condition V.A.5.r.2) below, the specified methods in Conditions V.A.3.a.1) through V.A.3.a.5) below must be used to determine whether the gas collection system is in compliance with Condition V.A.2.k.2)ii. [§63.1960(a); §2103.12.i]

1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with Condition V.A.2.k.2)ii.C(1), either Equation 5 or Equation 6 must be used. The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Department. The methane generation rate constant (k) and methane generation potential (Lo) 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 Department. If k

has been determined as specified in §63.1959(a)(4), the value of k determined from the test must be used. A value of no more than fifteen 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:

$$Q_M = 2L_OR\ (e^{-kc} - e^{-kt}) \qquad \text{Eq. 5}$$

Where:

Qm = Maximum expected gas generation flow rate, m3/yr.
Lo = Methane generation potential, m^3/Mg solid waste.
R = Average annual acceptance rate, Mg/yr.
k = Methane generation rate constant, $year^{-1}$.
t = Age of the landfill at equipment installation plus the time the permittee 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 $e^{-kc} = 1$).
2 = Constant.

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

$$Q_M = \sum_{i=1}^{n} \boldsymbol{2kLoMi}\ (\boldsymbol{e^{-kti}}) \qquad \text{Eq. 6}$$

Where:
Qm = Maximum expected gas generation flow rate, m^3/yr.
k = Methane generation rate constant, $year^{-1}$.
L_o = Methane generation potential, m^3/Mg solid waste.
M_i = Mass of solid waste in the ith section, Mg.
t_i = Age of the ith 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 Conditions V.A.3.a.1)i and V.A.3.a.1)ii. 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 Condition V.A.3.a.1)i or V.A.3.a.1)ii 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 Condition V.A.2.k.2)ii.B(2), the permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Department, 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 Condition V.A.2.k.2)ii.B(3) above, the permittee shall measure gauge pressure in the gas collection header applied to each individual well monthly. Any attempted corrective measure must not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval. If a positive pressure exists, follow the procedures as specified in §60.755(a)(3), except:

i. Beginning no later than September 27, 2021, if a positive pressure exists, action must be initiated to correct the exceedance within five days, except for the three conditions allowed under Condition V.A.6.i.

A. If negative pressure cannot be achieved without excess air infiltration within fifteen days of the first measurement of positive pressure, the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than sixty days after positive pressure was first measured. The permittee shall keep records according to Condition V.A.4.m.3).

B. If corrective actions cannot be fully implemented within sixty days following the positive pressure measurement for which the root cause analysis was required, the permittee 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 positive pressure measurement. The permittee must submit the items listed in Condition V.A.5.v.7) below as part of the next semiannual report. The permittee shall keep records according to Condition V.A.4.m.4) below.

C. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department, according to Condition V.A.5.x below. The permittee shall keep records according to Condition V.A.4.m.5) below.

4) To demonstrate compliance with the temperature operational standards in introductory Condition V.A.6.j below for the purpose of identifying whether excess air infiltration into the landfill is occurring, the permittee must follow the procedures as specified in condition V.A.3.a.4)i below:

i. The permittee shall demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below by monitoring each well monthly for temperature for the purpose of identifying whether excess air infiltration exists. If a well exceeds the operating parameter for temperature as provided in Condition V.A.6.j.1) below, action must be initiated to correct the exceedance within five days. Any attempted corrective measure must 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 fifteen days of the first measurement of landfill gas temperature greater than 62.8°C (145°F), the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than sixty days after a landfill gas temperature greater than 62.8°C (145°F) was first measured. The permittee must keep records according to Condition V.A.4.m.3) below.

B. If corrective actions cannot be fully implemented within sixty days following the temperature measurement for which the root cause analysis was required, the permittee 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 62.8°C (145°F). The permittee must submit the items listed in Condition V.A.5.v.7) below as part of the next semiannual report. The permittee must keep records according to Condition V.A.4.m.4) below.

C. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department, according to Condition V.A.5.v.7) below and V.A.5.x below. The permittee must keep records according to Condition V.A.4.m.5) 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 Condition V.A.3.g.5)vi below is greater than or equal to 1,000 ppmv the corrective action(s) for the wellhead temperature standard (62.8°C or 145°F) must be completed within fifteen days.

E. 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 Condition V.A.3.g.5)vi below is greater than or equal to 1,000 ppmv the corrective action(s) for the wellhead temperature standard (62.8°C or 145°F) must be completed within fifteen days.

5) To demonstrate compliance with Condition V.A.2.k.2)ii.B(4) above through the use of a collection system not conforming to the specifications provided in Conditions V.A.6.o below through V.A.6.q below, the permittee shall provide information satisfactory to the Administrator as specified in Condition V.A.5.r.3) below demonstrating that off-site migration is being controlled.

b. For purposes of compliance with Condition V.A.6.h below, the permittee shall place each well or design component as specified in the approved design plan as provided in Condition V.A.5.r below. Each well must be installed no later than sixty days after the date on which the initial solid waste has been in place for a period of: [§63.1960(b); §2103.12.i]

1) Five years or more if active; or
2) Two 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 Condition V.A.6.k below. [§63.1960(c); §2103.12.i]

1) After installation and startup of the gas collection system, the permittee must 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 Condition V.A.3.d below.
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 Part 60 of this chapter, 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 ppm or more above background at any location must be recorded as a monitored exceedance and the actions specified in Conditions V.A.3.a.4)i.A through V.A.3.a.4)i.E above must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §63.1958(d).

i. The location of each monitored exceedance must be marked, and the location and concentration recorded. Beginning no later than September 27, 2021, the location must be recorded 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 ten 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 ten days of the second exceedance. If the re- monitoring shows a third exceedance for the same location, the action specified in Condition V.A.3.c.4)v below must be taken, and no further monitoring of that location is required until the action specified in Condition V.A.3.c.4)v below has been taken.

iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the ten-day re- monitoring specified in Conditions V.A.3.c.4)ii above or V.A.3.c.4)iii above must be re-monitored one month from the initial exceedance. If the one-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 one-month re-monitoring shows an exceedance, the actions specified in Conditions V.A.3.c.4)iii above or V.A.3.c.4)v below must be taken.

v. 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 must 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 Department for approval.

5) The permittee must implement a program to monitor for cover integrity and implement cover repairs as necessary monthly.

d. The permittee shall demonstrate compliance with the provisions in Condition V.A.3.c above and must comply with the following instrumentation specifications and procedures for surface emission monitoring devices: [§63.1960(d); §2103.12.i]

1) The portable analyzer must meet the instrument specifications provided in Section 6 of EPA Method 21 of Appendix A of Part 60 of this chapter, except that “methane” replaces all references to “VOC”.
2) The calibration gas must be methane, diluted to a nominal concentration of 500 ppm in air.
3) To meet the performance evaluation requirements in Section 8.1 of EPA Method 21 of Appendix A of Part 60 of this chapter, the instrument evaluation procedures of Section 8.1 of EPA Method 21 of Appendix A of Part 60 must be used.
4) The calibration procedures provided in Sections 8 and 10 of EPA Method 21 of Appendix A of Part 60 of this chapter must be followed immediately before commencing a surface monitoring survey.

e. The permittee shall comply with the operational standards in introductory Condition V.A.6.l below by adhering to the provisions of 63 Subpart AAAA at all times, except during periods of SSM,

provided that the duration of SSM does not exceed five days for collection systems and does not exceed one hour for treatment or control devices. The permittee must comply with the provisions in Table 1 to Subpart AAAA that apply before September 28, 2021. [§63.1960(e)(1); §2103.12.i]

f. The permittee shall demonstrate compliance with the operational standard in Condition V.A.6.l.1) below at all times, including periods of SSM. During periods of SSM, the permittee must comply with the work practice requirement specified in Condition V.A.6.l below in lieu of the compliance provisions in §63.1960. [§63.1960(e)(2); 87 FR 8203, Feb. 14, 2022]

g. To comply with Condition V.A.2.k.2)ii.B above for an active gas collection system, the permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and: [§63.1961(a); §2103.12.i]

1) Measure the gauge pressure in the gas collection header monthly as provided in Condition V.A.3.a.3) above; and
2) Monitor nitrogen or oxygen concentration in the landfill gas monthly as follows:

i. The nitrogen level must be determined using EPA Method 3C of Appendix A-2 to Part 60 of this chapter unless an alternative test method is established as allowed by Condition V.A.5.r.2) below.

ii. Unless an alternative test method is established as allowed by Condition V.A.5.r.2) below, the oxygen level must be determined by an oxygen meter using EPA Method 3A or 3C of Appendix A-2 to Part 60 of this chapter or ASTM D6522-11 (incorporated by reference, see §63.14). Determine the oxygen level by an oxygen meter using EPA Method 3A or 3C of Appendix A-2 to Part 60 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; and
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 of Appendix A–2 to Part 60 of this chapter or ASTM D6522–11 (incorporated by reference, see §63.14).

3) The permittee shall demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below, by monitoring temperature of the landfill gas on a monthly basis as provided in Condition V.A.3.a.4) above. The temperature measuring device must be calibrated annually using the procedure in Section 10.3 of EPA Method 2 of Appendix A-1 to Part 60 of this chapter. Keep records specified in Condition V.A.4.m below.
4) The permittee shall demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below, unless a higher operating temperature value has been approved by the Administrator and the Department under this Subpart AAAA or under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a federal plan or EPA-approved and effective state plan or tribal plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR

Part 60, Subpart Cf, permittee must initiate enhanced monitoring at each well with a measurement of landfill gas temperature greater than 62.8°C (145°F) as follows:

i. Visual observations for subsurface oxidation events (smoke, smoldering ash, damage to well) within the radius of influence of the well.
ii. Monitor oxygen concentration as provided in Condition V.A.3.g.2) above;
iii. Monitor temperature of the landfill gas at the wellhead as provided in Condition V.A.3.g.4) above.
iv. Monitor temperature of the landfill gas every 10 vertical feet of the well as provided in Condition V.A.3.g.6) below.
v. Monitor the methane concentration with a methane meter using EPA Method 3C of Appendix A–6 to Part 60, EPA Method 18 of Appendix A–6 to Part 60 of this chapter, 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
vi. Monitor and determine carbon monoxide concentrations, as follows:

A. 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 Appendix A–4 to 40 CFR Part 60, or an equivalent method with a detection limit of at least 100 ppmv of carbon monoxide in high concentrations of methane; or
B. Collect and analyze the sample from the wellhead using EPA Method 10 of Appendix A-4 to 40 CFR Part 60, to measure carbon monoxide concentrations.
C. When sampling directly from the wellhead, permittee must sample for five minutes plus twice the response time of the analyzer. These values must be recorded. The five one-minute averages are then averaged to give you the carbon monoxide reading at the wellhead.
D. When collecting samples in a passivated canister or multi-layer foil sampling bag, you must sample for the period of time needed to assure that enough sample is collected to provide five consecutive, one-minute samples during the analysis of the canister or bag contents, but no less than five minutes plus twice the response time of the analyzer. The five consecutive, one-minute averages are then averaged together to give you a carbon monoxide value from the wellhead.

vii. The enhanced monitoring described in Condition V.A.3.g.5) above must begin seven calendar days after the first measurement of landfill gas temperature greater than 62.8°C (145°F); and
viii. The enhanced monitoring in Condition V.A.3.g.5) above must 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 landfill must return to weekly monitoring.
ix. The enhanced monitoring in Condition V.A.3.g.5) above can be stopped once a higher operating value is approved, at which time the monitoring provisions issued with the higher operating value should be followed, or once the measurement of landfill gas temperature at the wellhead is less than or equal to 62.8°C (145°F).

5) 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.

h. To comply with Condition V.A.2.k.2)iii above using an enclosed combustor, the permittee shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment: [§63.1961(b); §2103.12.i]

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 permittee must:

i. Install, calibrate, and maintain a gas flow rate measuring device that must record the flow to the control device at least every fifteen 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.

i. To demonstrate compliance with Condition V.A.2.k.2)iii above using a device other than a non-enclosed flare or an enclosed combustor or a treatment system, the permittee shall provide information satisfactory to the Department as provided in Condition V.A.5.r.2) below describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Department shall review the information and either approve it, or request that additional information be submitted. The Department may specify additional appropriate monitoring procedures. [§63.1961(d); §2103.12.i]

j. To install a collection system that does not meet the specifications in §63.1962 or seeking to monitor alternative parameters to those required by §63.1958 through §63.1961, the permittee shall provide information satisfactory to the Department as provided in Conditions V.A.5.r.2) below and V.A.5.r.3) below describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Department may specify additional appropriate monitoring procedures. [§63.1961(e); §2103.12.i]

k. To demonstrate compliance with the 500-ppm surface methane operational standards in Condition V.A.6.k below, the permittee shall monitor surface concentrations of methane according to the procedures in Condition V.A.3.c above and the instrument specifications in Condition V.A.3.d above, If the permittee is complying with the 500-ppm surface methane operational standard in Condition V.A.6.k.2) below, for location, permittee shall determine the latitude and longitude coordinates 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 semiannual report in Condition V.A.5.v below, permittee must report the location of each exceedance of the 500-ppm methane concentration as provided in Condition V.A.6.k below 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. [§63.1961(f); §2103.12.i]

l. To demonstrate compliance with Condition V.A.2.k.2)iii.B above using a landfill gas treatment system, the permittee shall 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). Beginning no later than September 27, 2021, the permittee shall maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in Condition V.A.4.j.4)ii below. The permittee shall: [§63.1961(g); §2103.12.i]

1) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every fifteen 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.

m. The monitoring requirements of Conditions V.A.3.g through V.A.3.i above and V.A.3.l above shall 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. 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. The permittee is required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. To demonstrate compliance with the temperature operational standards in introductory Conditions V.A.6.j.1) below, V.A.6.k.2) below, and V.A.6.l.1) below, the standards apply at all times. [§63.1961(h); §2103.12.i]

n. For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in Conditions V.A.3.n.2) below through V.A.3.n.3) below: [40 CFR 63.1965; §2103.12.i]

1) A deviation occurs when the control device operating parameter boundaries described in §63.1983(c)(1) are exceeded.
2) A deviation occurs when one hour or more of the hours during the three-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three fifteen-minute monitoring periods within the hour.
3) Before September 28, 2021, a deviation occurs when a SSM plan is not developed or maintained on site and when an affected source fails to meet any emission limitation, (including any operating limit), or work practice requirement in subpart AAAA during SSM, regardless of whether or not such failure is permitted by subpart AAAA.

o. When calculating a three-hour block average to demonstrate compliance of a monitored parameter, averages are calculated according to Condition V.A.4.j.2)i for average combustion temperature and Condition V.A.4.k.1)i for three-hour average combustion temperature for enclosed combustors, except that the data collected during the event listed in Condition V.A.3.o.1) are not to be included in any average computed under this subpart AAAA. [40 CFR 63.1975; §2103.12.i]

1) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments.
2) Startups.
3) Shutdowns.

4) Malfunctions.

p. The permittee shall demonstrate compliance with Condition V.A.1.l above by calculating the VOC emission rate from the cells, areas or groups of cells treated by the off-gas collection system. The collection efficiency determination shall be conducted annually using accepted engineering principles as accepted by the Department. [RACT Order No. 253, Condition 1.3]

4. Record Keeping Requirements:

a. Except as provided in Condition V.A.5.e.2) below, the permittee subject to the provisions of Condition V.A.1.g above must keep for at least five years up-to-date, readily accessible, on-site records of the design capacity report that triggered Condition V.A.1.g above, 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 four hours. Either paper copy or electronic formats are acceptable.[§62.16726(a); §2103.12.j]

b. Except as provided in Condition V.A.5.e.2) below, the permittee 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 Conditions V.A.4.b.1) through V.A.4.b.4) below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring must be maintained for a minimum of five years. Records of the control device vendor specifications must be maintained until removal. [§62.16726(b); §2103.12.j]

1) The permittee demonstrating compliance with Condition V.A.1.e;

i. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Condition V.A.1.j.1)

2) The permittee demonstrating compliance with Condition V.A.1.f 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 fifteen minutes and averaged over the same time period of the performance test.
ii. The percent reduction of NMOC determined as specified in Condition V.A.1.f.1) above achieved by the control device.

3) The permittee demonstrating compliance with Condition V.A.1.f.1)i above through the 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) The permittee demonstrating compliance with Condition V.A.1.f.2) above through the use of a landfill gas 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 Condition V.A.5.e.2) below, the permittee 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. [§62.16726(d); §2103.12.j]

1) The permittee must keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste from collection as provided in Condition V.A.1.j.1)iii.A as well as any nonproductive areas excluded from collection as provided in Condition V.A.1.j.1)iii.B.

d. The permittee shall keep records of the date upon which the permittee started complying with the provisions in §63.1958, §63.1960, and §63.1961 of 40 CFR 63, Subpart AAAA. [§62.16726(e)(6); §2103.12.j]

e. The permittee who converts 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 four hours. Either paper copy or electronic formats are acceptable. [§62.16726(f); §2103.12.j]

f. The permittee 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 Condition V.A.2.f above must keep for at least five 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: [§62.16726(g); §2103.12.j]

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 a permittee 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 permittee 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 Condition V.A.4.c above.
9) Records of the operating hours of the gas collection system for each destruction device.

g. Any records required to be maintained by subpart AAAA that are submitted electronically via the EPA's CDX may be maintained in electronic format. [§62.16726(i); §2103.12.j]

h. The permittee shall keep records as specified in Subpart AAAA. The permittee shall also keep records as specified in the general provisions of 40 CFR Part 63 as shown in Table 1 to Subpart AAAA. [§63.1983; §2103.12.j]

i. Except as provided in Condition V.A.5.r.2) below, the permittee subject to the provisions of Conditions V.A.2.k.2)ii and V.A.2.k.2)iii above must keep for at least five years up-to-date, readily accessible, on-site records of the design capacity report that triggered Condition V.A.2.k above, 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 four hours. Either paper copy or electronic formats are acceptable. [§63.1983(a); §2103.12.j]

j. Except as provided in Condition V.A.5.r.2) below, the permittee 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 Conditions V.A.4.j.1) through V.A.4.j.5) below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring must be maintained for a minimum of five years. Records of the control device vendor specifications must be maintained until removal. [§63.1983(b); §2103.12.j]

1) The permittee shall demonstrate compliance with §63.1959(b)(2)(ii) by maintaining:

i. The maximum expected gas generation flow rate as calculated in §63.1960(a)(1).
ii. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §63.1962(a)(1) and (2)

2) The permittee shall demonstrate compliance with Condition V.A.2.k.2)iii above through the 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 fifteen minutes and averaged over the same time period of the performance test.
ii. The percent reduction of NMOC determined as specified in Condition V.A.2.k.2)iii.A above achieved by the control device.

3) The permittee shall demonstrate compliance with Condition V.A.2.k.2)iii.A(1) above 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) The permittee shall demonstrate compliance with Condition V.A.2.k.2)iii.B above 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.** Beginning no later than September 27, 2021, the permittee must prepare 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. List of responsible staff (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 (CMS).

k. Except as provided in Condition V.A.5.r.2) below, the permittee shall keep for five years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in Conditions V.A.3.g through V.A.3.n 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. [§63.1983(c); §2103.12.j]

1) The following constitute exceedances that must be recorded and reported under §63.1981(h):

i. For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million Btu per hour) or greater, all three-hour periods of operation during which the average temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with Condition V.A.2.k.2)iii above 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 Condition V.A.4.j above and V.A.4.j.3) above.

2) The permittee 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 Conditions V.A.3.h.2)ii and V.A.3.m.2) above.
3) The permittee seeking to comply with Condition V.A.2.k.2) above using an active collection system designed in accordance with Condition V.A.2.k.2)ii above must keep records of periods when the collection system or control device is not operating.
4) Where the permittee subject to the provisions of this subpart seeks to demonstrate compliance with the operational standard in Condition V.A.6.l.1) below, 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.
5) Where the permittee subject to the provisions of 40 CF Part 63, Subpart AAAA seeks to demonstrate compliance with the operational standard in Condition V.A.6.l.1) below, in the event that an affected unit fails to meet an applicable standard, record the information below:
   i. For each failure record the date, time and duration of each failure and the cause of such events (including unknown cause, if applicable).
   ii. For each failure to meet an applicable standard; record and retain a list of the affected sources or equipment.
   iii. Record actions taken to minimize emissions in accordance with the general duty of §63.1955(c) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

6) Beginning no later than September 27, 2021, in lieu of the requirements specified in §63.8(d)(3) of 40 CFR 63 Subpart A, the permittee must keep the written procedures required by §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 Department. If the performance evaluation plan is revised, the permittee must keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Department, for a period of five years after each revision to the plan. The program of corrective action should be included in the plan required under §63.8(d)(2).

l. Except as provided in Condition V.A.5.r.2) below, the permittee 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 for each collector. [§63.1983(d); §2103.12.j]
   1) The permittee 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 Condition V.A.3.b above.
   2) The permittee 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 Condition V.A.6.o.3)i below as well as any nonproductive areas excluded from collection as provided in Condition V.A.6.o.3)ii below.

m. Except as provided in Condition V.A.5.r.2) below, the permittee must keep for at least five years up-to-date, readily accessible records of the following: [§63.1983(e); §2103.12.j]

1) All collection and control system exceedances of the operational standards in Conditions V.A.6.h through V.A.6.n below, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
2) The permittee must keep records of each wellhead temperature monitoring value of greater than 55°C (131°F), each wellhead nitrogen level at or above 20%, and each wellhead oxygen level at or above 5%, except:

   i. The permittee subject to the provisions of 40 Subpart AAAA seeks to demonstrate compliance with the compliance provisions for wellhead temperature in Condition V.A.6.j.1) below, but no later than September 27, 2021, the records of each wellhead temperature monitoring value of 62.8°C (145°F) or above instead of values greater than 55°C (131°F).
   ii. The permittee required to conduct the enhanced monitoring provisions in Condition V.A.3.g.4) above, must also keep records of all enhanced monitoring activities.
   iii. The permittee required to submit the twenty-four-hour high-temperature report in Condition V.A.5.y below, must also keep a record of the email transmission.

3) For any root cause analysis for which corrective actions are required in Condition V.A.3.a.3)i.A above or Condition V.A.3.a.4)i.A above, 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 Condition V.A.3.a.3)i.B above or V.A.3.a.4)i.B above, 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 Condition V.A.3.a.3)i.C above or V.A.3.a.4)i.C above, 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 Department

n. The permittee who converts design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million Mg or 2.5 million m3, 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 four hours. Either paper copy or electronic formats are acceptable. [§63.1983(f); §2103.12.j]

o. Except as provided in Condition V.A.5.r.2) below, the permittee must keep for at least five years up-to-date, readily accessible records of all collection and control system monitoring data for parameters measured in Conditions V.A.3.g.1) through V.A.3.g.5) above. [§63.1983(g); §2103.12.j]

p. The permittee shall demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below and shall keep the following records. [§63.1983(h); §2103.12.j]

1) Records of the landfill gas temperature monthly as monitored in Condition V.A.3.a.4) above.

2) 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 §63.1961(a)(5) and (6).

i. 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 a delegated air agency or the EPA as part of an on-site compliance evaluation.

q. The permittee shall monitor and record the daily, monthly, and quarterly waste acceptance rate to determine compliance with Condition V.A.1.c. [§2103.12.j]

r. The permittee shall always maintain all records regarding gas monitoring data, tonnage records and waste characterization. Such records shall provide sufficient data and calculations to clearly demonstrate that all requirements of both Section 2105.06 of Article XXI and Order No. 253 are being met. [§2105.06, RACT Order No. 253, Condition 1.8; §2103.12]

s. The permittee shall record all instances of noncompliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.h.1]

t. All records required under this section shall be maintained by the permittee for a period of five years following the date of such record. [§2103.12.j.2]

5. Reporting Requirements:

a. The permittee shall submit semiannual reports to the Department in accordance with General Condition III.15. [§2103.12.k]

b. **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: [§62.16724(a); §2103.12.k]

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 permittee 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 Department may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

c. **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 ninety 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 Condition V.A.4.e above. [§62.16724(b); §2103.12.k]

d. **NMOC emission rate report**. For existing MSW landfills covered by 40 CFR 62 Subpart OOO 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 no later than ninety days after the effective date of this subpart. The NMOC emission rate report must be submitted to the Department annually, except as provided for in Condition V.A.5.d.3) below. The Department may request such additional information as may be necessary to verify the reported NMOC emission rate. [§62.16724(c); §2103.12.k]

1) The NMOC emission rate report must contain an annual or five-year estimate of the NMOC emission rate calculated using the formula and procedures provided in Conditions V.A.2.a above through V.A.2.f above or V.A.2.g above, as applicable.
2) The NMOC emission rate report must include all the data, calculations, sample reports, and measurements used to estimate the annual or five-year emissions.
3) If the estimated NMOC emission rate as reported in the annual report to the Department is less than 34 megagrams per year in each of the next five-consecutive years, the permittee may elect to submit, following the procedure specified in paragraph §62.16724(j)(2), an estimate of the NMOC emission rate for the next five-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 five years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided to the Department. This estimate must be revised at least once every five years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five-year estimate, a revised five-year estimate must be submitted to the Department. The revised estimate must cover the five-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

e. **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: [§62.16724(d); §2103.12.k]

1) The collection and control system as described in the design plan must meet the design requirements in Conditions V.A.1.e and V.A.1.f above.
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 §62.16716 through §62.16726 proposed by the permittee.
3) The collection and control system design plan must either conform to specifications for active collection systems in Condition V.A.1.j above or include a demonstration to the Administrator’s and the Department's satisfaction of the sufficiency of the alternative provisions to Condition V.A.1.j above.
4) The permittee of a 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 Department within one

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 permittee elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in Condition V.A.2.c 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 §62.16724(j)(2), within 180 days of the first calculated exceedance of 34 megagrams per year.

ii. If the permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant k, as provided in Tier 3 in Condition V.A.2.d, 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 Condition V.A.2.d above and the resulting site-specific methane generation rate constant k must be submitted, following the procedure specified in paragraph §62.16724(j)(2), to the Department within one year of the first calculated NMOC emission rate equaling or exceeding 34 megagrams per year.

iii. If permittee elects to demonstrate that site-specific surface methane emissions are below 500 parts-per million methane, based on the provisions of Condition V.A.2.f above, then the permittee must submit annually a Tier 4 surface emissions report as specified in this paragraph following the procedure specified in paragraph §62.16724(j)(2) 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 permittee may reduce Tier 4 monitoring from a quarterly to an annual frequency. The Department 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, the permittee 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 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 thirty 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 §62.16724(j)(2).
B. The Tier 4 surface emissions rate report must be submitted within one year of the first measured surface exceedance of 500 parts-per-million methane, following the procedure specified in paragraph §62.16724(j)(2).

iv. If the landfill is in the closed landfill subcategory, the permittee is exempt from submitting a collection and control system design plan to the Department if Condition V.A.7.e.3)

below are met. If not, the permittee shall follow the submission procedures and timing in Conditions V.A.5.e.4)ii and V.A.5.e.4)iii using a level of 50 Mg/yr. instead of 34 Mg/yr.

5) The permittee must notify the Department that the design plan is completed and submit a copy of the plan's signature page. The Department has ninety days to decide whether the design plan should be submitted for review. If the Department chooses to review the plan, the approval process continues as described in Condition V.A.5.e.6) below. However, if the Department indicates that submission is not required or does not respond within ninety days, the permittee can continue to implement the plan with the recognition that the permittee is proceeding at their own risk. If the design plan is required to be modified to obtain approval, the permittee 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 Department must review the information submitted under Conditions V.A.5.e.1) through V.A.5.e.3) above 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 Department does not approve or disapprove the design plan or does not request that additional information be submitted within ninety days of receipt, then permittee may continue with implementation of the design plan, recognizing they would be proceeding at their own risk.
7) If the permittee chooses to demonstrate compliance with the emission control requirements of this subpart using a treatment system as defined in this subpart, then the permittee must prepare a site-specific treatment system monitoring plan as specified in Condition V.A.4.b.5) above. Legacy controlled landfills must prepare the monitoring plan no later than May 23, 2022.

f. **Revised design plan**. The permittee who has already been required to submit a design plan under Condition V.A.5.e above, 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 Department for approval as follows: [§62.16724(e); §2103.12.k]

1) At least ninety 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 Department according to Condition V.A.5.e above.

g. **Closure report**. The permittee shall submit a closure report to the EPA and the Department within thirty days of ceasing waste acceptance. The Department 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 Department, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4). [§62.16724(f); §2103.12.k]

h. **Equipment removal report**. The permittee shall submit an equipment removal report to the Department thirty days prior to removal or cessation of operation of the control equipment. [§62.16724(g); §2103.12.k]

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

i. A copy of the closure report submitted in accordance with Condition V.A.5.g above; and
ii. A copy of the initial performance test report demonstrating that the fifteen-year minimum control period has expired, unless the report of the results of the performance test has been submitted to the and EPA via the EPA's Central Data Exchange (CDX) and the Department according to General Condition III.15 above, or information that demonstrates that the gas collection and control system will be unable to operate for fifteen 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 the Department; 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 Department according to General Condition III.15 above and EPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports; or

2) The Department may request such additional information as may be necessary to verify that all the conditions for removal in Condition V.A.1.h above have been met.

i. **Initial performance test report.** The permittee seeking to comply with Condition V.A.1.f above must include the following information with the initial performance test report required under 40 CFR 60.8 of this chapter: [§62.16724(i); §2103.12.k]

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. **Tier 4 notification**. [§62.16724(m); §2103.12.k]

1) The permittee 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 Condition V.A.2.f above. 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 thirty 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 Condition V.A.2.f.3)i, the permittee shall notify the Department by email or telephone no later than forty-eight hours before any known delay in the original test date, and arrange an updated date with the Department by mutual agreement.

k. **Notification of meeting Tier 4**. The permittee must submit a notification to the EPA Regional office and the Department within ten business days of completing each increment of progress. Each notification must indicate which increment of progress specified in Condition V.A.7.g has been achieved. The notification must be signed by the permittee of the landfill. [§62.16724(n); §2103.12.k]

1) For the first increment of progress (submit control plan), you must follow Condition V.A.5.m below in addition to submitting the notification described in Condition V.A.5.k above. 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 Condition V.A.5.k above.

l. **Notification of failing to meet an increment of progress.** The permittee who fails to meet any increment of progress specified in Conditions V.A.7.h.1) through V.A.7.h.5) below according to the applicable schedule in Condition V.A.7.g must submit notification that the permittee failed to meet the increment to the EPA Regional office and the Department within ten business days of the applicable date in Condition V.A.7.g below. [§62.16724(o); §2103.12.k]

m. **Alternate dates for increments 2 and 3**. The permittee (or the state or tribal air pollution control authority) that is submitting alternative dates for increments 2 and 3 according to Condition V.A.7.k must do so by the date specified for submitting the final control plan. The date for submitting the final control plan is specified in Condition V.A.7.i, as applicable. The permittee (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 permittee must also submit the alternative dates to the state or tribe. [§62.16724(p); §2103.12.k]

n. The permittee must submit the reports specified in this section and the reports specified in Table 1 to 40 CFR 63, Subpart AAAA. If the permittee have previously submitted a design capacity report, amended design capacity report, initial NMOC emission rate report, initial or revised collection and control system design plan, closure report, equipment removal report, or initial performance test under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a federal plan or EPA-approved and effective state plan or tribal plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf, then that submission constitutes compliance with the design capacity report in Condition V.A.5.o below, the amended design capacity report in Condition V.A.5.p below, the initial NMOC emission rate report in Condition V.A.5.q below, the initial collection and control system design plan in Condition V.A.5.r below, the revised design plan in Condition V.A.5.s below, the closure report in Condition V.A.5.t below, the equipment removal report in Condition V.A.5.u below, and the initial performance test report in Condition V.A.5.w below. Permittees do not need to re-submit the report(s). However, the permittee must include a statement certifying prior submission of the respective report(s) and the date of submittal in the first semiannual report required in this section. [§63.1981; §2103.12.k]

o. **Initial design capacity report**. The initial design capacity report must contain the information specified below: [§63.1981(a); §2103.12.k]

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 Mg or m^3 for comparison with the exemption values. If the permittee 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 Mg or 2.5 million m^3, 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, tribal, and local agency may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

p. **Amended design capacity report**. An amended design capacity report must be submitted to the Department providing notification of an increase in the design capacity of the landfill, within ninety days of an increase in the maximum design capacity of the landfill to meet or exceed 2.5 million Mg and 2.5 million m^3. 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 Condition V.A.4.n above. [§63.1981(b); §2103.12.k]

q. **NMOC emission rate report.** The permittee must submit a copy of the latest NMOC emission rate report that was submitted according to §60.757(b) of 40 Part 60 Subpart WWW or submit an NMOC emission rate report to the EPA and the Department initially and annually thereafter, except as provided for in Condition V.A.5.q.3)i. The Department may request such additional information as may be necessary to verify the reported NMOC emission rate. If you have submitted an annual report under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a Federal plan or EPA-approved and effective state plan or tribal plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf, then that submission constitutes compliance with the annual NMOC emission rate report in this paragraph. The permittee does not need to re-submit the annual report for the current year. Beginning no later than September 27, 2021, the report must meet the following requirements: [§63.1981(c); §2103.12.k]

1) The NMOC emission rate report must contain an annual or five-year estimate of the NMOC emission rate calculated using the formula and procedures provided in Conditions V.A.2.a above through V.A.2.f above, or V.A.2.g above, as applicable.
2) The initial NMOC emission rate report must be submitted no later than ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.
3) Subsequent NMOC emission rate reports must be submitted annually thereafter, except as provided for in Condition V.A.5.q.3)i.
   i. If the estimated NMOC emission rate as reported in the annual report to the Department is less than 50 Mg/yr. in each of the next five consecutive years, the permittee may elect to submit, an estimate of the NMOC emission rate for the next five-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 five years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided to the Department. This estimate must be revised at least once every five years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five-year estimate, a revised five-year estimate must be submitted to the Department. The revised estimate must cover the five-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

4) The NMOC emission rate report must include all the data, calculations, sample reports, and measurements used to estimate the annual or five-year emissions.
5) The permittee is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with Condition V.A.2.b.2) above, during such time as the collection and control system is in operation and in compliance with §63.1958 and §63.1960.

r. **Collection and control system design plan**. The permittee subject to the provisions of Condition V.A.2.b.2) above must submit a collection and control system design plan to the EPA and the Department according to Conditions V.A.5.r.1) through V.A.5.r.6) below. The collection and control system design plan must be prepared and approved by a professional engineer. [§63.1981(d); §2103.12.k]

1) The collection and control system as described in the design plan must meet the design requirements in Condition V.A.2.b.2) above.
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 §63.1957 through §63.1983 proposed by the permittee.
3) The collection and control system design plan must either conform with specifications for active collection systems in Conditions V.A.6.o below through V.A.6.q below or include a demonstration to the EPA and the Department's satisfaction of the sufficiency of the alternative provisions to Conditions V.A.6.o below through V.A.6.q below.
4) The permittee of a MSW landfill affected by Subpart AAAA must submit a collection and control system design plan to the EPA and the Department for approval within one year of becoming subject to this subpart.
5) The permittee must notify the EPA and the Department that the design plan is completed and submit a copy of the plan's signature page. The Department has ninety days to decide whether the design plan should be submitted for review. If the Department chooses to review the plan, the approval process continues as described in Condition V.A.5.r.6) below. If the design plan is required to be modified to obtain approval, the permittee 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 Department must review the information submitted under Conditions V.A.5.r.1) above through V.A.5.r.3) above 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.

s. **Revised design plan.** Beginning no later than September 27, 2021, the permittee who has already

been required to submit a design plan under Condition V.A.5.r above must submit a revised design plan to the EPA and the Department for approval as follows: [§63.1981(e); §2103.12.k]

1) At least ninety 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 Department according to Condition V.A.5.r above.

t. **Closure report**. The permittee shall submit a closure report to the Administrator and the Department within thirty days of waste acceptance cessation. The Department may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of §258.60 of 40 CFR Part 258. If the closure report has been submitted to the EPA and the Department, no additional wastes may be placed into the landfill without filling a notification of modification under §63.9(b) of Subpart A. [63.1981(f); §2103.12.k]

u. **Equipment removal report**. The permittee shall submit an equipment removal report as provided in §60.757(e) of 40 CFR Part 60, Subpart WWW. The permittee shall submit an equipment removal report to the Administrator and the Department thirty days prior to removal or cessation of operation of the control equipment. [§63.1981(g); §2103.12.k]

1) Beginning no later than September 27, 2021, the equipment removal report must contain all the following items:

i. A copy of the closure report submitted in accordance with Condition V.A.5.t above;
ii. A copy of the initial performance test report demonstrating that the fifteen-year minimum control period has expired, or information that demonstrates that the gas collection and control system will be unable to operate for fifteen 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 Central Data Exchange (CDX); and
iii. 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 Department, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the Department may be submitted in the equipment removal report in lieu of the NMOC emission rate reports.

2) The Department may request such additional information as may be necessary to verify that all the conditions for removal in Condition V.A.6.g below have been met.

v. **Semiannual report.** The permittee is demonstrating compliance with Condition V.A.2.k.2) above using an active collection system designed in accordance with Condition V.A.2.k.2)ii and shall submit to the Administrator and the Department semiannual reports. The initial report must be submitted within 180 days of installation and startup of the collection and control system and must include the initial performance test report required under §63.7 of Subpart A, as applicable. In the initial 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 and the Department. For enclosed combustion devices and flares, reportable exceedances are defined under Condition V.A.4.k above. The semiannual reports must

contain the information in Conditions V.A.5.v.1) through V.A.5.v.8) below. [§63.1981(h); §2103.12.k]

1) Number of times that applicable parameters monitored under Conditions V.A.6.i through V.A.6.k below were exceeded and when the gas collection and control system was not operating under Condition V.A.6.l below, including periods of SSM. For each instance, report the date, time, and duration of each exceedance.

   i. The permittee shall demonstrate compliance with the temperature operational standards in introductory Condition V.A.6.j below by providing a statement of the wellhead operational standard for temperature and oxygen you are complying with for the period covered by the report. Indicate the number of times each of those parameters monitored under Condition V.A.3.g.3) above were exceeded. For each instance, report the date, time, and duration of each exceedance.
   ii. Where a permittee subject to the provisions of this subpart seeks to demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below by providing a statement of the wellhead operational standard for temperature you are complying with for the period covered by the report. Indicate the number of times each of those parameters monitored under Condition V.A.3.g.4) above were exceeded. For each instance, report the date, time, and duration of each exceedance.
   iii. Beginning no later than September 27, 2021, number of times the parameters for the site-specific treatment system in Condition V.A.3.m above were exceeded.

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 §63.1961.
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-ppm methane concentration as provided in Condition V.A.6.k below and the concentration recorded at each location for which an exceedance was recorded in the previous month. Beginning no later than September 27, 2021, for location, permittee record the latitude and longitude coordinates of each exceedance 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 Conditions V.A.3.a.3) and V.A.3.a.4), V.A.3.b and V.A.3.c.4) above.
7) For any corrective action analysis for which corrective actions are required in Conditions V.A.3.a.3)i.A or V.A.3.a.5) above and that take more than sixty 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 high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates.
8) The permittee required to conduct enhanced monitoring in Conditions V.A.3.g.4) and V.A.3.g.5) above, shall include the results of all the monitoring activities conducted during the period.

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

ii. 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.

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

w. **Initial performance test report.** To comply with Condition V.A.2.k.2)ii.C above, the permittee shall include the following information with the initial performance test report required under §63.7 of Subpart A: [§63.1981(i); §2103.12.k]

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.

x. **Corrective action and the corresponding timeline.** The permittee must submit information regarding corrective actions according to Conditions V.A.5.x.1) below and V.A.5.x.2) below. [§63.1981(j); §2103.12.k]

1) For corrective action that is required according to Conditions V.A.3.a.3) or V.A.3.a.4), and is not completed within sixty days after the initial exceedance, permittee must submit a notification to the Department as soon as practicable but no later than seventy-five days after the first measurement of positive pressure or temperature exceedance.
2) For corrective action that is required according to Conditions V.A.3.a.3) or V.A.3.a.4), and is expected to take longer than 120 days after the initial exceedance to complete, permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department as soon as practicable but no later than seventy-five days after the first measurement of positive pressure or temperature monitoring value of 62.8°C (145°F) or above unless a higher operating temperature value has been approved by the Department for the well under this subpart or under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a Federal plan or EPA approved and effective state plan or tribal plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf. The Department must approve the plan for corrective action and the corresponding timeline.

y. ***24*-hour high temperature report.** To demonstrate compliance with the operational standard for temperature in Condition V.A.6.j.1) below and 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 must report the date, time, well identifier, temperature, and carbon monoxide reading via email to the

Department within twenty-four hours of the measurement unless a higher operating temperature value has been approved by the Department for the well under 40 CFR Part 63 Subpart AAAA or under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a Federal plan or EPA approved and effective state plan or tribal plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf. [§63.1981(k); §2103.12.k]

z. The permittee shall report noncompliance information required to be recorded by the Department in Condition V.A.4.s above in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [§2103.12.k.1]

aa. Reporting instances of noncompliance in accordance with Condition V.A.5.z above does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

6. Work Practice Standard:

a. The permittee shall not, at any time, conduct operations at the landfill unless all equipment is properly operated and maintained according to good engineering and air pollution control practices. [§2105.03; §2103.12.a.2.B]

b. Unless specified elsewhere, the permittee shall calibrate, maintain, and operate all instrumentation, process equipment, and control equipment according to manufacturer's recommendations and good engineering practices. [§2105.03; §2103.12.a.2.B]

c. Deposition of sewage sludge shall be accomplished during the first half of the workday and subsequently covered with adequate non-sewage sludge waste or cover materials. Deposited sewage sludge waste shall not remain exposed to the air. [IP No. 0190-I001a,V.A.6; §2103.12.a.2.D]

d. Beginning no later than September 28, 2021, 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 Condition V.A.5.r.2) above. [§63.1955(a); §2103.12.k; §2103.12.a.2.B]

e. At all times, beginning no later than September 27, 2021, the permittee must 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 Department 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. [§63.1955(c); §2103.12.k; §2103.12.a.2.B]

f. **Operation.** Operate the collection and control device in accordance with the provisions of §63.1958, §63.1960, and §63.1961. [§63.1957(a); §2103.12.a.2.B]

g. **Removal criteria.** The collection and control system may be capped, removed, or decommissioned if the following criteria are met: [§63.1957(b); §2103.12.k; §2103.12.a.2.B]

1) The landfill is a closed landfill (as defined in §63.1990). A closure report must be submitted to the Department as provided in §63.1981(f);
2) The gas collection and control system has been in operation a minimum of fifteen years, or the permittee demonstrates that the gas collection and control system will be unable to operate for fifteen years due to declining gas flow; and
3) Following the procedures specified in §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 must be no less than ninety days apart, and no more than 180 days apart.

h. The permittee shall 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: [§63.1958(a); §2103.12.a.2.B]

1) Five years or more if active; or
2) Two years or more if closed or at final grade;

i. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions: [§63.1958(b); §2103.12.a.2.B]

1) **A fire or increased well temperature.** The permittee must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the semiannual reports as provided in Condition V.A.5.v above;
2) **Use of a geomembrane or synthetic cover.** The permittee must develop acceptable pressure limits in the design plan; and
3) **A decommissioned well.** A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes must be approved by the Department as specified in Condition V.A.5.r.2) above.

j. The permittee shall: [§63.1958(c); §2103.12.a.2.B]

1) Operate each interior wellhead in the collection system with a landfill gas temperature less than 62.8°C (145°F).

2) The permittee may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to the Department 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 to be approved (i.e., neither causing fires nor killing methanogens is acceptable).

k. The permittee shall: [§63.1958(d); §2103.12.a.2.B]

1) 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 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. The permittee 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. [§63.1958(d)(1)]

2) The permittee shall: [§63.1958(d)(2)]

i. Conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Condition V.A.3.d above.
ii. Conduct surface testing at all cover penetrations. Thus, the permittee must monitor any cover penetrations that are within an area of the landfill where waste has been placed and a gas collection system is required.
iii. Determine the latitude and longitude coordinates of each exceedance using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.

l. The permittee shall operate the system in accordance with Condition V.A.6.e above such that all collected gases are vented to a control system designed and operated in compliance with §63.1959(b)(2)(iii). In the event the collection or control system is not operating: [§63.1958(e); §2103.12.a.2.B]

1) 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 one hour of the collection or control system not operating; and
2) Efforts to repair the collection or control system must be initiated and completed in a manner such that downtime is kept to a minimum, and the collection and control system must be returned to operation.

m. Operate the control system at all times when the collected gas is routed to the system. [§63.1958(f); §2103.12.a.2.B]

n. If monitoring demonstrates that the operational requirements in Conditions V.A.6.i above and V.A.6.k above are not met, corrective action must be taken as specified in Conditions V.A.3.a.3) and V.A.3.a.5) or V.A.3.c above. If corrective actions are taken as specified in §63.1960, the monitored exceedance is not a deviation of the operational requirements in §63.1958. [§63.1958(g); §2103.12.a.2.B]

o. The permittee seeking to comply with Condition V.A.2.k.2)i above 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 as provided in Conditions V.A.5.r.2) above and V.A.5.r.3) above. [§63.1962(a); §2103.12.a.2.B]

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 Condition V.A.6.o.1) above 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 Condition V.A.6.o.1) above must control all gas producing areas, except as provided by Conditions V.A.6.o.3)i below and V.A.6.o.3)ii below.

i. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under Condition V.A.4.l above. 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% 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 the following equation:

$$Q_i = 2kL_oM_i(C_{NMOC})(3.6 \times 10^{-9})$$

Where:
Q_i = NMOC emission rate from the ith section, Mg/yr.
k = Methane generation rate constant, $year^{-1}$.
L_o = Methane generation potential, m^3/Mg solid waste.
M_i = Mass of the degradable solid waste in the ith section, Mg.
t_i = Age of the solid waste in the ith section, years.
C_{NMOC} = Concentration of NMOC, ppmv.
3.6×10^{-9} = Conversion factor.

B. If the permittee 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 Condition V.A.2.g above or Equation 7 in Condition V.A.6.o.3)ii.A above.

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, L_o and C_{NMOC} provided in Condition V.A.2.a.1) above or the alternative values from Condition V.A.2.e above 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 Condition V.A.6.o.3)i above.

p. Permittee seeking to comply with Condition V.A.2.k.2)ii must construct the gas collection devices using the following equipment or procedures: [§63.1962(b); §2103.12.a.2.B]

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 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.

q. The permittee seeking to comply with Condition V.A.2.k.2)iii above must convey the landfill gas to a control system in compliance with Condition V.A.2.k.2)iii above 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: [§63.1962(c); §2103.12.a.2.B]

1) For existing collection systems, the flow data must be used to project the maximum flow rate. If no flow data exists, the procedures in Condition V.A.6.q.2) below must be used.

2) For new collection systems, the maximum flow rate must be in accordance with Condition V.A.3.a.1) above.

7. Additional Requirements Standards:

a. The permittee shall follow the compliance provisions in §62.16720 (as well as the provisions in §62.16716 and §62.16722), or the compliance provisions in §63.1960 of this chapter (as well as the provisions in §§63.1958 and §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 §62.16714(b) and (c). Once the permittee begins to comply with the provisions of §63.1960 of 40 CFR Part 63, Subpart AAAA, the permittee must continue to operate the collection and control device according to those provisions and cannot return to the provisions of this section. [40 CFR 62.16720]

b. This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. [§40 CFR 63.1930; §2103.12.a.2.B]

c. Beginning no later than September 27, 2021, all landfills described in §63.1935 must meet the requirements of 40 CFR 63, Subpart AAAA. A landfill may choose to meet the requirements of

this Subpart AAAA rather than the requirements identified in §63.1930(a) at any time before September 27, 2021. The requirements of this subpart always apply, including during periods of SSM, and the SSM requirements of the General Provisions of this part do not apply. [40 CFR 63.1930(b]

d. The permittee is no longer required to comply with the requirements of Subpart AAAA when your landfill meets the collection and control system removal criteria in Condition V.A.6.g above. [40 CFR 63.1950]

e. After September 27, 2021, the SSM provisions of §63.6(e) of Subpart A no longer apply to Subpart AAAA and the SSM plan developed under §63.1964(a) no longer applies. Compliance with the emissions standards and the operating standards of §63.1958 of Subpart AAAA is required at all times. [40 CFR 63.1964(b]

f. When an MSW landfill is in the closed landfill subcategory, the permittee is not subject to the following reports of 40 CFR 62 Subpart OOO, provided the permittee 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: [§62.16711(g); [§2103.12.a.2.B]

1) Initial design capacity report specified in Condition V.A.5.b above.
2) Initial or subsequent NMOC emission rate report specified in Condition V.A.5.d above, 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 Condition V.A.5.e above.
4) Closure report specified in Condition V.A.5.g above.
5) Equipment removal report specified in Condition V.A.5.h above.
6) Initial performance test report in Condition V.A.5.i

g. 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 §62.16714 must be completed within thirty months after the date an NMOC emission rate report shows NMOC emissions equal or exceed 34 megagrams per year; or within thirty 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 permittee must follow the requirements of Conditions V.A.7.g through V.A.7.j. [§62.16712; §2103.12.a.2.B]

h. **Increments of progress.** The permittee 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 Conditions V.A.7.h.1) through V.A.7.h.5) to install air pollution control devices to meet the emission standards specified in Conditions V.A.1.e and V.A.1.f above. Refer to §62.16730 for a definition of each increment of progress. [§62.16712(a); §2103.12.a.2.B]

1) **Submit control plan.** Submit a final control plan (collection and control system design plan) according to the requirements of Condition V.A.5.e above.
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.

i. **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 Conditions V.A.1.e and V.A.1.f above must be accomplished within thirty 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 Condition V.A.7.k. [§62.16712(b); §2103.12.a.2.B]

j. **Compliance schedules.** The permittee 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 Conditions V.A.7.h.1) through V.A.7.h.5) according to the schedule specified in Conditions V.A.7.j.1), V.A.7.j.2) , or V.A.7.k. [§62.16712(c); §2103.12.a.2.B]

1) **Achieving Increments of Progress.** The permittee of a designated facility must achieve the increments of progress according to the schedule in Table 1 of 40 CFR 62, Subpart OOO. 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 Conditions V.A.7.h.1), V.A.7.h.4), and/or V.A.7.h.5) than does this Federal plan).
2) **Tier 4.** The permittee of a designated facility that is using the Tier 4 procedures specified in Condition V.A.2.f above must achieve the increments of progress according to the schedule in Table 1 of this subpart.

k. **Alternative dates.** For designated facilities that are subject to the schedule requirements of Condition V.A.7.j.1) above, the permittee (or the state or tribal air pollution control authority) may submit to the appropriate EPA Regional Office for approval alternative dates for achieving Conditions V.A.7.h.2) and V.A.7.h.3). [§62.16712(d); §2103.12.a.2.B]

B. Process P002: Enclosed Ground Flare

Process Description: One enclosed ground flare for collected landfill gas VOC destruction
Facility ID: S001 and S003
Max. Design Rate: 120 MMBtu/hour
Capacity: 4,000 scfm
Raw Materials: Landfill Gas, Propane, or natural gas for flare startup
Control Device: None

1. Restrictions:

a. The permittee shall operate the primary flare S001 at a minimum temperature of 1,500°F or the minimum temperature at which 98% destruction efficiency was demonstrated during the most recent stack test, whichever is greater, and shall have a residence time of at least 0.5 seconds at all times. [IP #0215-I002, V.A.1.e; §2103.12.a.2.D; §63.1959(b)(2)(iii)(B)]

b. Flare S001 shall be operated to achieve and maintain a destruction/removal efficiency (DRE) of at least 98% (by weight) for non-methane organic compounds (NMOC) at all times. [IP #0215-I002, V.A.1.c; §2103.12.a.2.D; §63.1959(b)(2)(iii)(B)]

c. The permittee shall operate flare S001 with no visible flame emitting from the flare. [IP #0215-I002, V.A.1.d; §2103.12.a.2.D; Permit No. 1023394-000-20600]

d. The permittee shall equip flare S001 with an automatic pilot ignition source using only propane or natural gas as an auxiliary fuel. [Permit No. 1023394-000-20600,1; IP #0215-I002, V.A.1.g; §2103.12.a.2.D]

e. The permittee shall operate the flare with no visible emissions, except for periods not to exceed a total of five minutes during any two consecutive hours. [IP #0215-I002, V.A.1.h; §2103.12.a.2.D; §60.18(c)(1)]

f. The permittee shall operate flare S001 with a flame present at all the times during operation. The flare shall be operated with an automatic shut-off mechanism designed to immediately stop the flow of the gases when a flame-out occurs. During restart or start-up, there shall be sufficient flow of auxiliary fuel to the burners such that the un-burnt landfill gases are not emitted to the atmosphere. [§2103.12.a.2.D; IP #0215-I002, V.A.1.g]

g. Emissions from enclosed ground flare S001 shall not exceed the limitations given in Table V-B-1 below: [§2103.12.a.2.D; IP #0215-I002, V.A.1.i]

TABLE V-B-1: Enclosed Ground (P002) Emission Limitations

Pollutant	Hourly Emission Limit (lb/hr)	Annual Emission Limit (tons/year)*
Particulate Matter/PM_{10}	1.88	8.22
Sulfur Dioxide	2.1	8.80
Nitrogen Oxides	9.6	42.05
Carbon Monoxide	24	105.12
Volatile Organic Compounds	0.25	1.11
Non-Methane Organic Compounds (NMOC)	0.65	2.84

*A year is defined as any consecutive twelve-month period.

h. The landfill gas flaring shall not exceed the maximum potential usage of 4,000 scf per minute (240,000 scf in any one hour) . [§2103.12.h.1; §2103.12.a.2.B]

2. Testing Requirements:

a. The permittee shall test the enclosed ground flares S001 for compliance with NMOC destruction efficiency once every five years according to approved U.S. EPA test methods and Section 2108.02 of Article XXI, as specified in Condition V.A.2.j above. [RACT Order No. 253, Condition 1.5; IP #0215-I002,V.A.2.a; §2103.12.h]

b. The permittee shall test the enclosed flare S001 to demonstrate compliance with Condition V.B.1.g above for NOx, and CO. The test shall be repeated once every five years from the date of the prior test. The testing shall be conducted in accordance with approved U.S. EPA test methods and Site Level Condition IV.13 above. [IP #0215-I002,V.A.2.b; §2103.12.h]

c. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Article XXI §2108.02. [§2103.12.h.1]

3. Monitoring Requirements:

a. The permittee shall continuously measure the flue gas temperature to flare S001. [IP #0215-I002, V.A.3; §2103.12.i]

b. The permittee shall comply with the monitoring requirements of §63.1961 for the flare, as specified in Section V.A.3 above. [§2103.12.i]

c. The permittee shall use Test Method 22 in Appendix A of 40 CFR Part 60 to determine compliance with the enclosed flare visible emission in Condition V.B.1.e above. The observation period is two hours and shall be used according to Method 22. The visible emissions test shall be performed semiannually. [§63.11(b)(4); §2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall record the continuous measurements of flare flue gas temperature for S001 required by Condition V.B.3.a above. [IP #0215-I002,V.A.4.a; §2103.12.j]

b. The permittee shall comply with the recordkeeping requirements of §62.16726 and §63.1983 for the flare, as specified in Condition V.A.4 above. [§62.16726; §63.1983; §2105.73; §2103.12.j]

c. The permittee shall record all instances of noncompliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2103.12.h.1]

d. All records required under this section shall be maintained by the permittee for a period of five years following the date of such record. [§2103.12.j.2; IP #0215-I002,V.A.4.b]

5. Reporting Requirements:

a. The permittee shall submit semiannual reports to the Department in accordance with General Condition III.15. [§2103.12.k]

b. The permittee shall comply with the reporting requirements of §62.16726 and §63.1981 for the flare, as specified in Condition V.A.5 above. [§63.1981; §62.16726; §2105.73; §2103.12.k]

c. The permittee shall report noncompliance information required to be recorded by the Department in Condition V.B.4.c above, in accordance with General Condition III.15. The reports shall contain all required information for the time period of the report: [§2103.12.k.1]

d. Reporting instances of noncompliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

6. Work Practice Standard:

a. The permittee shall comply with the work practice requirements of Condition V.A.6.n for the flare, as specified in Condition V.A.6 above. [§63.1958; §2103.12.a.2.B]

b. A telemetering, remote warning device to notify landfill personnel that the flare is not operating shall be installed at the time of installation of the enclosed flare control system and operational at all times when landfill gas is going to the flare. [§2103.12.a.2.B]

C. Fugitive Emissions Due to Landfill Operations and Construction

Process Description: Earthcover (soil/rock) extraction, processing, application of sub-base, structural fill, protective cover soils, application of daily and intermediate soils, screening operations, wind erosion of in-place soils and paved /unpaved plant roads

Facility ID: F001

Capacity: 2,999,000 Yd^3 of daily cover, 145,800 Yd^3 of intermediate cover soils, total protective cover soils of 218,800 Yd^3, total sub-base soils of 72,900 Yd^3, structural fill soils of 415,100 Yd^3, and final cover soils of 291,800 Yd^3, 0.62 miles of paved roads and 0.9 miles of Unpaved Roads

Control Device: Fugitive Dust Control Measures

1. Restrictions:

a. The permittee shall at no time use any excavated soils contaminated with HAPS or total petroleum hydrocarbons with a concentration of greater than 200 ppmv as a soil cover without Department approval. [IP# 0215-I001, V.B.1.a.1; §2103.12.a.2.D]

b. The permittee shall not use waste oil as a dust suppressant. [IP #0215-I001, V.B.1.a.2; §2103.12.a.2.D]

c. The permittee shall at no time use any residual wastes as a daily cover that are not reviewed and approved by the landfill's PADEP approved program for internally identifying, accepting, and approving residual wastes for land application, without Department approval. [§2103.12.a.2.B]

d. Emissions of particulate matter from landfill construction and operations shall not exceed the limitation given in Table V-C-1. [§2103.12.a.2.D, IP #0215-I001, V.B.1.b]

TABLE V-C-1: Emission Limitations

Pollutant	Annual Emissions Limit (tons/year)*
Particulate Matter	25.38
PM_{10}	25.36
$PM_{2.5}$	25.34

*A year is defined as any consecutive twelve-month period

e. Emissions of fugitive particulate matter from paved and unpaved operations shall not exceed the limitation given in Table V-C-2. [§2103.12.a.2.B]

TABLE V-C-2: Emission Limitations

Pollutant	Annual Emissions Limit (tons/year)*
Particulate Matter	34.98
PM_{10}	9.12
$PM_{2.5}$	1.04

*A year is defined as any consecutive twelve-month period

2. Testing Requirements:

a. The permittee shall perform a waste profile analysis using Method 8260 (TCLP) or similar analytical procedure to measure the soil HAP/VOC to comply with Condition V.C.1.a. (§2108.02; §2103.12.h.1)

b. The Department reserves the right to require emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with Site Level Condition IV.13 entitled "Emissions Testing." [§2103.12.h.1]

3. Monitoring Requirements:

a. The permittee shall monitor the landfill construction and operations daily to ensure that pressurized water is available to control any generated fugitive emissions and to comply with conditions V.C.6.a and V.C.6.c below. [§2103.12.i]

b. The permittee shall monitor the vehicle speed limit to comply with condition V.C.6.h below. [§2103.12.i]

c. The permittee shall monitor the vehicles to ensure that the undercarriage, wheels, and chassis are washed before exiting the landfill and to comply with Condition V.C.6.g below. [§2103.12.i]

d. The permittee shall monitor the unpaved roadways daily to ensure that water does not pool during fugitive dust control to comply with condition V.C.6.d below. [§2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall maintain on-site records showing the maximum design capacity, current amount of solid waste in place and the month-to-month solid waste acceptance rate. Documentation concerning the nature, deposition date, amount, and location of any non-landfill gas producing areas (including asbestos) excluded from the gas collection system shall be maintained. [IP #0215-I001,V.B.2; §2103.12.j]

b. The permittee shall maintain records describing the time, location, type, and amount of roadway surface treatment required at Condition V.C.6 below. Records shall be maintained on-site for at least five years and provided to the Department upon request. Such records shall include the following: [§2103.12.j]

1) For paved roads and parking areas:

i. Daily log of time and location of any vacuum sweeping conducted, including daily engine run time or odometer readings;
ii. Identification, time, and location of any maintenance, repairs, patching, treatment, or repaving of roads; and
iii. Maintenance of a log explaining the reasons any required vacuum sweeping was not performed.

2) For unpaved roads and shoulders of paved roads, record keeping of water flushing shall include:

i. Daily log of time and location of treated areas;
ii. Identification of dust suppressants if applied;
iii. Daily log of meter readings of spray bar and/or pump or odometer reading of trucks used to apply water and/or dust suppressants;
iv. Daily log of the dilution ratios of the dust suppressants and diluents used if chemical suppressants are used; and,
v. Purchase records of the chemical suppressants, if used.

c. The permittee shall keep and maintain records of the test required in Condition V.C.2.a above. [§2103.12.j]

d. The permittee shall record the amount of soil used during the landfill operations and construction daily. [§2103.12.j]

5. Reporting Requirements:

a. The permittee shall report the test result required in Condition V.C.4.c above to the Department in accordance with General Condition III.15 above. [§2103.12.j]

b. The permittee shall report the annual emissions calculation required in condition V.C.6.i below. [§2103.12.k]

6. Work Practice Standards:

a. The permittee shall take all reasonable actions to prevent particulate matter due to source activities from becoming airborne. In no case shall fugitive emissions from the use of roads, soil, or rock processing, blasting, and stockpiling of material cross the property boundary. [IP #0215-I001, V.B.3.a; §2103.12.a.2.D]

b. The permittee shall ensure that Earth or other material deposited by trucking or other means on the paved roadways, including public roadways, is promptly removed. [IP #0215-I001,V.B.3.b; §2103.12.a.2.D]

c. During landfill construction and covering operations, the permittee shall make available a pressurized water truck on-site and use such as needed to minimize the generation of fugitive dust. Sufficient water shall be applied to control fugitive dust from construction and covering operations. [IP #0215-I001, V.B.3.c; §2103.12.a.2.D]

d. The permittee shall ensure that the access roadways if unpaved at the unloading areas of active cells shall have a crown so that water runs off and does not pool. Water or other chemical dust suppressants shall be applied to the unpaved road surface to reduce fugitive dusts. Water, if used shall be applied at least twice daily during dry weather conditions, and chemical dust suppressants, if used, shall be applied as needed, but at least monthly. [IP #0215-I001, V.B.3.d; §2103.12.a.2.D; §2103.12.j]

e. The permittee shall apply water or chemical dust suppressants on the shoulder of access roadways and the shoulder of the public highway for a distance of 500 feet, as needed, in the direction of egress. Water, if used, shall be applied at least twice a day. Chemical dust suppressants, if used, shall be applied at least monthly. Application of dust suppressants on the public highway shall be done in accordance with the appropriate Pennsylvania Department of Transportation procedures.

[IP #0215-I001, V.B.3.e; §2103.12.a.2.D; §2103.12.j]

f. The permittee shall ensure that Earth or other material deposited by trucking or other means on the paved roadways, including public highways, is promptly removed from the paved roadways. [IP #0215-I001, V.B.3.f; §2103.12.a.2.D]

g. Upon leaving the landfill, the permittee shall ensure that the undercarriage, wheels, and chassis of the vehicles which were used to transport wastes and earth, are washed to prevent earthen carryout onto roadways. [IP #215-I001, V.B.3.g; §2103.12.a.2.D]

h. A speed limit of fifteen miles per hour shall be observed on all paved access roadways and ten miles per hour on all unpaved areas. Speed limits shall be posted, and landfill personnel shall enforce these speed limits. [IP #0215-I001, V.B.3.h; §2103.12.a.2.D]

i. The permittee shall calculate the annual emissions of PM, PM_{10} and $PM_{2.5}$ using the information in Condition V.C.4 above V.C.4.d above and the AP-42, Table 11.19 emission factors to demonstrate compliance with Condition V.C.1.d above. [§2103.12.a.2.B]

VI. MISCELLANEOUS

The following table summarizes the processes and/or activities conducted at the Monroeville Landfill that were determined to be insignificant.

TABLE VI-1: Insignificant Processes

I.D	Source Description	Basis for Exemption	Restrictions
T001	Three motor oil storage tanks, with a capacity of 500 gallons each	PTE less than 0.15 TPY of VOC	None
T002	One hydraulic oil storage tank, with a capacity of 500 gallons	PTE less than 0.3 TPY of VOC	None
T003	One underground diesel storage tank, with a capacity of 8000 gallons	PTE less than 0.01 TPY of VOC	None
T004	Two leachate storage tanks, with a capacity of 700,000 gallons each	PTE less than 0.01 TPY of VOC	None

.

VII. ALTERNATIVE OPERATING SCENARIOS

A. Municipal Solid Waste Landfill

1. Restrictions.

a. In addition to Condition V.A.6.i above, the permittee shall operate the collection system with negative pressure at each wellhead except under the following alternative operating scenarios: [§2103.12.a.2.B]

1) **Alternative Scenario #1:**

i. When collection or control systems are experiencing downtimes due to routine maintenance. Routine equipment maintenance includes gas collection header repairs, wellhead and valve repairs, replacement or modifications, and other activities.

ii. When negative pressure has the potential to induce air intrusion.

2) **Alternative Scenario #2:** A well may be placed on an inactive list if it exhibits a methane quality that is consistently below 40 percent by volume and an oxygen level that is consistently above 5% while the throttle is either closed or slightly open with a negative pressure applied to the well of less than one inch of water column. During the period of inactivity and while on the inactive list, the well will be exempt from negative pressure requirements. If at any time the landfill observes conditions that warrant the operation of a well on the inactive list, the well shall be reactivated and normal.

3) **Alternative Scenario #3:** A well in an area of active waste placement that is inaccessible due to its casing height (generally having a casing height of five feet or greater) may be temporarily placed on the inactive list, whereby the well would be exempt from wellhead monitoring requirements until landfilling around the well allows for safe access.

2. Record Keeping Requirements:

a. The permittee shall keep records of each alternative operating scenario in Conditions VII.A.1.a through VII.A.1.a.3) above, and the records shall include the following: [§2103.12.j]

1) The date and list of wells affected by the alternative operating scenarios in Conditions VII.A.1.a.1), VII.A.1.a.2), or VII.A.1.a.3) above.
2) The start and end date of the maintenance required in Condition VII.A.1.a.1)i above
3) The date the wells in Conditions VII.A.1.a.2) and VII.A.1.a.3) above are reactivated.

3. Reporting Requirements:

The permittee shall submit semiannual reports of the information required under Condition VII.A.2.a above in accordance with General Condition III.15. [§2103.12.k]

4. Work Practice Standards:

The permittee shall continue to comply with the surface emission monitoring around the wells as required in Condition V.A.6.k.1) above. [§2103.12.a.2.B].

VIII. EMISSIONS LIMITATIONS SUMMARY

The annual emission limitations for the Monroeville Landfill facility are summarized in the following table:

TABLE VIII-1: Emission Limitations Summary

Pollutant	Annual Emission Limit (tons/year)*
Particulate Matter	68.58
PM_{10}	42.70
$PM_{2.5}$	34.61
CO	105.12
Nitrogen Oxides	42.05
Sulfur Oxides	9.90
Volatile Organic Compounds	21.14
NMOC	54.19
Single HAP (HCl)	4.25
Total HAPs	17.72
CO_2e (both CH_4 & CO_2)	305,327

*A year is defined as any consecutive twelve-month period.