



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Craig W. Butler, Director

7/29/2015

Mr. Richard Martin
 LAKE COUNTY SOLID WASTE FACILITY
 Lake County Department of Utilities
 105 Main Street, P.O.Box 490
 Painesville, OH 44077-0490

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
 Facility ID: 0243111198
 Permit Number: P0118769
 Permit Type: OAC Chapter 3745-31 Modification
 County: Lake

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
 77 South High Street, 17th Floor
 Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)963-1200 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: U.S. EPA
Ohio EPA-NEDO; Pennsylvania; Canada



FINAL

**Division of Air Pollution Control
Permit-to-Install
for
LAKE COUNTY SOLID WASTE FACILITY**

Facility ID: 0243111198
Permit Number: P0118769
Permit Type: OAC Chapter 3745-31 Modification
Issued: 7/29/2015
Effective: 7/29/2015



Division of Air Pollution Control
Permit-to-Install
for
LAKE COUNTY SOLID WASTE FACILITY

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Final Permit-to-Install
LAKE COUNTY SOLID WASTE FACILITY
Permit Number: P0118769
Facility ID: 0243111198
Effective Date: 7/29/2015

Authorization

Facility ID: 0243111198
Facility Description: Municipal Solid Waste Landfill
Application Number(s): A0052988, A0053683
Permit Number: P0118769
Permit Description: Chapter 31 modification permit to increase the total waste capacity of the landfill.
Permit Type: OAC Chapter 3745-31 Modification
Permit Fee: \$1,250.00
Issue Date: 7/29/2015
Effective Date: 7/29/2015

This document constitutes issuance to:

LAKE COUNTY SOLID WASTE FACILITY
2039 Blase-Nemeth Road
Painesville, OH 44077

of a Permit-to-Install for the emissions unit(s) identified on the following page.

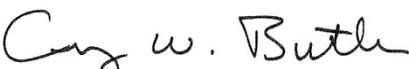
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)963-1200

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Craig W. Butler
Director



Final Permit-to-Install
LAKE COUNTY SOLID WASTE FACILITY
Permit Number: P0118769
Facility ID: 0243111198
Effective Date: 7/29/2015

Authorization (continued)

Permit Number: P0118769

Permit Description: Chapter 31 modification permit to increase the total waste capacity of the landfill.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	F002
Company Equipment ID:	Landfill operations (includes flare & uncollected gas)
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install
LAKE COUNTY SOLID WASTE FACILITY
Permit Number: P0118769
Facility ID: 0243111198
Effective Date: 7/29/2015

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
 - (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

- a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

- b) It shall not be a defense for the 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 federally enforceable terms and conditions of this permit.
- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - (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.
 - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
 - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
 - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

- a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted

local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

- b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
- (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
 - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
- (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s) not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the

Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



Final Permit-to-Install
LAKE COUNTY SOLID WASTE FACILITY
Permit Number: P0118769
Facility ID: 0243111198
Effective Date: 7/29/2015

B. Facility-Wide Terms and Conditions



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

a) None.

2. The following emissions unit contained in this permit is subject to 40 CFR Part 60, Subpart WWW, Standards of Performance for New Stationary Sources for Municipal Solid Waste Landfills: F002. The complete NSPS requirements, including the Subpart A General Provisions, may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website at <http://www.ecfr.gov> or by contacting the Ohio EPA Northeast District Office.

The permittee must comply with all applicable requirements of 40 CFR Part 60, Subpart WWW. The permittee shall also comply with all applicable requirements of 40 CFR Part 60, Subpart A (General Provisions). Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 60, Subpart WWW, and Subpart A.

3. The following emissions unit contained in this permit is subject to 40 CFR Part 63, Subpart AAAA, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills: F002. The complete NESHAP requirements, including the Subpart A General Provisions, may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website at <http://www.ecfr.gov> or by contacting the Ohio EPA Northeast District Office.

The permittee must comply with all applicable requirements of 40 CFR Part 63, Subpart AAAA. The permittee shall also comply with all applicable requirements of 40 CFR Part 63, Subpart A (General Provisions) as identified in Table 1 of 40 CFR Part 63, Subpart AAAA. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 63, Subpart A, and Subpart A.



Final Permit-to-Install
LAKE COUNTY SOLID WASTE FACILITY
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C. Emissions Unit Terms and Conditions



1. F002, Landfill operations (includes flare & uncollected gas)

Operations, Property and/or Equipment Description:

Landfill Operations - Fugitive dust and LF gas controlled by a 5,000 scfm open flare limited to permitted capacity of 2,500 scfm.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	<p>Landfill Operations:</p> <p>Install an active gas collection system that is designed to meet the requirements of 40 CFR Part 60, Subpart WWW.</p> <p>Work practice standards that are sufficient to minimize or eliminate particulate emissions and fugitive landfill gas emissions (volatile organic compounds).</p>
b.	OAC rule 3745-31-05(F)	<p>5,000 scfm Flare (Restricted to 2,500 scfm):</p> <p>Carbon monoxide (CO) emissions shall not exceed 3.8 lbs/hr and 16.6 tons/yr.</p> <p>Nitrogen oxide (NOx) emissions shall not exceed 3.2 lbs/hr and 14 tons/yr.</p> <p>Particulate emissions (PE) shall not exceed 1.2 lbs/hr and 5.3 tons/yr.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.83 lb/hr and 3.7 tons/yr.</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-07(B)(1)	Visible fugitive emissions shall not exceed 20% opacity, as a 3-minute average.
d.	OAC rule 3745-17-08(B)	See c)(2) through c)(4) below.
e.	OAC rule 3745-19	See b)(2)a. below.
f.	ORC 3704.03	See b)(2)b. below.
g.	40 CFR Part 60, Subpart WWW [In accordance with 40 CFR 60.750, this unit is located at a municipal solid waste landfill facility subject to the emissions limitations/control measures specifies in this section.]	There shall be no visible emissions from the flare, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. See b)(2)c. through b)(2)o., c)(5) through c)(12), d)(2) through d)(17), e)(2) through e)(5) below.
h.	40 CFR Part 63, Subpart AAAA [In accordance with 40 CFR 63.1935, this unit is located at a municipal solid waste landfill facility subject to the emissions limitations/control measures specifies in this section.]	Operating in compliance with 40 CFR Part 60, Subpart WWW is the demonstration of compliance for 40 CFR Part 63, Subpart AAAA. See e)(2) below.

(2) Additional Terms and Conditions

- a. There shall be no open burning, in violation of OAC Chapter 3745-19 at this facility.
- b. Pursuant to the authority in ORC section 3704.03(L), any representative of the Director may, upon presentation of proper identification, enter at any reasonable time upon any portion of the property where this landfill is located, including any improvements thereon, to make inspections; take samples; conduct tests; examine records or reports pertaining to any emissions of air contaminants; and inspect monitoring equipment, emissions control equipment, and/or methods of operation and gas sampling. No operator or agent of this landfill shall act in any manner to refuse, hinder, or thwart this legal right of entry.
- c. The permittee shall properly install, operate, and maintain a device to continuously monitor the flare flame when Land Fill Gas (LFG) is routed to the flare. The monitoring device and any recorder shall be installed, calibrated,

operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

- d. The permittee shall continue to install a collection and control system, that captures the gas generated within the landfill as required in 40 CFR 60.752(b)(2), this permit, and as submitted in the May 2002 Gas Collection and Control System (GCCS) Design plan or any subsequent plan approved by the Director (the Ohio EPA Division of Air Pollution Control Northeast District Office). The collection and control system shall route all the collected gas to one of the following control devices:
- i. an open flare designed and operated in accordance with 40 CFR 60.18, except as noted in 40 CFR 60.754(e); or
 - ii. a control system designed and operated to reduce NMOC by 98 percent by weight; or, if the control is an enclosed combustion device, to either reduce the NMOC by 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppm by volume, on a dry basis as hexane at 3% oxygen; or
 - iii. a treatment system that processes the collected gas for subsequent sale or use, with a collection and control system that either reduces the NMOC by 98 percent by weight or reduces the outlet NMOC concentration to less than 20 ppm by volume, on a dry basis as hexane at 3% oxygen, which would include a flare meeting the requirements of 40 CFR 60.18.

The reduction efficiency or ppm by volume shall 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 as specified in 40 CFR 60.754(d) and this permit.

The collection and control system shall be installed as specified in the approved design plan, as required in 40 CFR 60.752(b)(2), and shall be operated to comply with 40 CFR 60, Subpart WWW in accordance with the provisions of 40 CFR 60.753, 60.755, and 60.756, which are reflected in this permit.

- e. The permittee shall operate the active collection and control system to capture the gas generated within the landfill and route all the collected gas to a gas treatment system, which shall process the collected gas for subsequent sale or use, with a collection and control system that either reduces the NMOC by 98 percent by weight or reduces the outlet NMOC concentration to less than 20 ppm by volume, on a dry basis as hexane at 3% oxygen, which would include a flare meeting the requirements of 40 CFR 60.18. The collection and control system shall be operated to comply with 40 CFR 60, Subpart WWW in accordance with the provisions of 40 CFR sections 60.752, 60.753, 60.755, and 60.756, which are reflected in this permit.
- f. The landfill gas collection system shall satisfy the following requirements, as specified in 40 CFR 60.752(b)(2)(ii)(A):

- i. the system shall 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 or treatment system equipment;
 - ii. the system shall collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active, or 2 years or more if closed or at final grade;
 - iii. the system shall collect gas at a sufficient extraction rate; and
 - iv. the system shall be designed to minimize off-site migration of subsurface gas.
- g. The permittee shall install and place each well or design component as specified in the approved design plan. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five years or more, if active; or two years or more, if closed or at final grade.
- h. The open flare shall be designed and operated as follows:
- i. The flare shall be designed for and operated with no visible emissions, as determined by Method 22 of Appendix A of 40 CFR Part 60, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - ii. The flare shall be operated with a flame present at all times when landfill gases are vented to it. The presence of a flare flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame when LFG is routed to the flare. The net heating value of the gas being combusted and the actual exit velocity shall be calculated as required in the Testing Section of this permit.
 - iii. Flares shall be steam-assisted, air-assisted, or non-assisted, and shall comply with the following requirements for the heat content in paragraph “(a)” and the maximum tip velocity in paragraph “(b)”, or shall comply with the alternative requirements in paragraph “(c)” for nonassisted flares:
 - (a) Steam-assisted or air-assisted flares shall have a net heating value of 300 Btu/scf (11.2 MJ/scm) or greater, for the gas being combusted.

Nonassisted flares shall have a net heating value of 200 Btu/scf (7.45 MJ/scm) for the gas being combusted.

The net heating value of the gas being combusted shall be calculated as required in the Testing Section of this permit.
 - (b) Steam-assisted and/or nonassisted flares shall be designed for and operated with an exit velocity of less than 18.3 m/sec (60 ft/sec), with the following exceptions:

- (i) steam-assisted and nonassisted flares, having a net heating value of 1,000 Btu/scf (37.3 MJ/scm) for the gas being combusted, can be designed for and operated with an exit velocity equal to or greater than 18.3 m/sec (60 ft/sec), but less than 122 m/sec (400 ft/sec); and

steam-assisted and nonassisted flares can be designed for and operated with an exit velocity of less than the velocity calculated below for V_{max} , and less than 122 m/sec (400 ft/sec):

$$\text{Log}_{10} (V_{max}) = (HT + 28.8)/31.7$$

where:

V_{max} = maximum permitted velocity, m/sec;

28.8 = constant;

31.7 = constant; and

HT = the net heating value as determined in the Testing Section of this permit.

- (ii) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max} , calculated as follows:

$$V_{max} = 8.706 + 0.7084 (H_T)$$

where:

V_{max} = maximum permitted velocity, m/sec;

8.706 = constant;

0.7084 = constant; and

H_T = the net heating value as determined in the Testing Section of this permit.

- (c) Nonassisted flares that have a diameter of 3 inches or greater and a hydrogen content of 8.0 percent (by volume), or greater, shall be designed for and operated with an exit velocity of less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max} , as determined by the following equation:

$$V_{max} = (X_{H_2} - K_1) K_2$$

where:

V_{\max} = maximum permitted velocity, m/sec;

K_1 = constant, 6.0 volume-percent hydrogen;

K_2 = constant, 3.9 (m/sec)/volume-percent hydrogen; and

X_{H_2} = the volume-percent of hydrogen, on a wet basis, as calculated by using the ASTM Method D1946-90.

- i. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - i. a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at flare flame to indicate the continuous presence of a flame when LFG is routed to the flare; and
 - ii. a device that records flow to or bypass of the flare. The permittee shall either:
 - (a) install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or
 - (b) secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall 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.
- j. The collection and control system may be capped or removed provided that all of the following conditions, as specified in 40 CFR 60.752(b)(2)(v), are met:
 - i. The landfill shall no longer be accepting solid waste and shall be permanently closed as defined in 40 CFR 60.751 and in accordance with the requirements of 40 CFR 258.60.
 - ii. The collection and control system shall have been in operation a minimum of 15 years.
 - iii. The NMOC emission rate of the landfill, calculated per 40 CFR 60.754(b), shall be less than 50 megagrams/year on three successive test dates. The test dates shall be no less than 90 days and no more than 180 days apart.
 - iv. A closure report shall be submitted to the Director within 30 days of waste acceptance cessation and no additional wastes shall be placed in the landfill.

- k. The permittee 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 Director:
 - i. The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall 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, and resistance to the refuse decomposition heat.
 - ii. The sufficient density of gas collection devices, determined above, shall address landfill gas migration issues and augmentation of the collection system through the use of active systems at the landfill perimeter or exterior.
- l. The permittee shall convey the landfill gas to a control system through the collection header pipe(s). The gas moving equipment shall be sized to handle the maximum gas generation flow rate expected over its intended period of use, using the following procedures:
 - i. For existing collecting systems, the actual flow data shall be used to project the maximum flow rate.
 - ii. For new collection systems, the maximum flow rate shall be calculated in accordance with 40 CFR 60.755(a)(1), using the formula also contained in the Testing Section of this permit.
- m. Landfill gas collection devices shall be placed to control all gas producing areas except those that meet the following requirements:
 - i. Any segregated area of non-degradable material may be excluded from the gas collection requirements if up-to-date plot maps showing each uniquely identified existing and planned collector in the system, their locations on the map, and the type of waste deposited in each area has been documented. The documentation shall provide the nature, date of deposition, location, and amount of non-degradable material deposited in the area, and shall be provided to the Director upon request.
 - ii. Any non-productive 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 shall be documented and provided to the Director upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the

sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill.

Emissions from each section shall be computed using the following equation:

$$Q_i = 2k L_0 M_i (e^{-kt_i}) C_{NMOC} (3.6 \times 10^{-9})$$

where:

Q_i = NMOC emission rate from the i^{th} section, in megagrams per year

k = methane generation rate constant, in year⁻¹

L_0 = methane generation potential, in cubic meters per megagram solid waste

M_i = mass of the degradable solid waste in the i^{th} section, in megagram

t_i = age of the solid waste in the i^{th} section, in years

C_{NMOC} = concentration of nonmethane organic compounds, in parts per million by volume

3.6×10^{-9} = conversion factor

- iii. The values for k , L_0 , and C_{NMOC} determined in field testing shall be used, if field testing has been performed in determining the NMOC emission rate or the radii of influence. If field testing has not been performed, the default values for k , L_0 and C_{NMOC} are as follows:

$k^* = 0.05$ per year

$L_0 = 170$ cubic meters per megagram

$C_{NMOC} = 4,000$ parts per million by volume as hexane

* 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 meteorologic site, the k value to be used is 0.02 per year.

- n. When the permittee constructs new gas collection devices, the permittee shall use the following equipment or procedures:
- i. The landfill gas extraction components shall 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 shall extend as necessary to comply with

emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

- ii. Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall 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 shall 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 shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.
- o. The provisions of this permit, under the authority of 40 CFR, Part 60, Subpart WWW, apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of the start-up, shutdown, or malfunction event does not exceed 5 days for collection systems and does not exceed 1 hour for treatment or control devices, in which case any deviation from the requirements shall be recorded and included in the semiannual report.

c) Operational Restrictions

- (1) The flare flow rate shall not exceed 2500 standard cubic feet per minute (scfm).
- (2) The permittee shall ensure that solid wastes are deposited, spread, and compacted in such a manner as to minimize or prevent visible emissions of fugitive dust. The permittee shall require all truckloads of solid waste to be unloaded in a manner that will minimize the drop height of the solid wastes. Any dusty materials or waste loads that would potentially exceed the visible emissions limit shall be watered as necessary prior to or during dumping operations in order to minimize or eliminate visible emissions of fugitive dust. Watering shall be conducted in such a manner as to avoid the pooling of liquids and runoff. No dusty material shall be dumped during periods of high wind speed, unless the material has been treated to prevent fugitive dust emissions from becoming airborne.
- (3) The permittee shall employ reasonably available control measures for the above-identified landfill fugitive dust operations/sources for the purpose of ensuring compliance with the above-mentioned applicable requirements. The permittee maintains that the inherent moisture content of the materials involved in fugitive dust operations/sources is at any level which is more than sufficient to comply with all applicable requirements. If at

any time the moisture content is not sufficient to meet the above applicable requirements, the permittee shall employ reasonable available control measure to ensure compliance.

- (4) The above-identified control measure(s) shall be implemented if the permittee determines, as a result of the inspection conducted pursuant to the monitoring section of this permit, that the control measures are necessary to ensure compliance with the above-mentioned applicable requirements. Any required implementation of the control measure(s) shall continue during the operation of the fugitive dust operation/sources until further observation confirms that use of the control measure(s) is unnecessary.
- (5) Implementation of the above-mentioned control measures in accordance with the terms and conditions of this permit is appropriate and sufficient to satisfy the requirements of OAC rule 3745-17-08.
- (6) A flare flame shall be maintained at all times in the flare's burner when LFG is routed to the flare. The presence of the flare flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame.
- (7) 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 5 years or more if active, or for 2 years or more if closed or at final grade, and as required in 40 CFR 60.752, 60.753, and this permit. The collection and control system shall meet the specifications for an active collection system as required in 40 CFR 60.759, included in this permit.
- (8) The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions:
 - a. a fire or increased well temperature (the permittee shall record all instances when positive pressure occurs in efforts to avoid a fire);
 - b. use of a geomembrane or synthetic cover (the permittee shall develop acceptable pressure limits in the design plan); or
 - c. decommissioned well (a well may experience a static positive pressure after shutdown to accommodate for declining flows). All design changes shall be approved by the Ohio EPA.
- (9) The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius and with either a nitrogen level less than 20% or an oxygen level less than 5%. The permittee may establish a higher operating temperature, nitrogen level, or oxygen level at a particular well, if it can be demonstrated with supporting data, that the elevated parameter could not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. The nitrogen or oxygen concentration shall be determined as required in the Testing Section of this permit.
- (10) The permittee shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the permittee shall conduct surface testing on a

quarterly basis around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.

The permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

The permittee shall install a new well or other collection device for any location where the monitored methane concentration equals or exceeds 500 ppm above background three times within a quarterly period and within 120 calendar days of the initial exceedance.

- (11) The permittee shall operate the collection system such that all collected gases are vented to a control system designed and operated in compliance with the requirements in this permit. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour.
- (12) The permittee shall operate the control and/or treatment system at all times when the collected gas is routed to the system.
- (13) If monitoring demonstrates that the operational requirements for negative pressure, interior wellhead temperature, wellhead oxygen or nitrogen concentration, and/or surface methane levels are not met, corrective action shall be taken as specified in the monitoring and record keeping requirements for the pressure, temperature, oxygen or nitrogen concentration at each well's gas collection header and surface methane measurements. If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements.

d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible emissions of fugitive dust from non-asbestos-containing materials resulting from any landfill operations (such as wastes unloading, covering, excavation, and wind erosion). The presence or absence of any visible emissions of fugitive dust shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

- d. the total duration of any visible emission incident; and
 - e. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee shall keep for at least 5 years, up-to-date, readily accessible, on-site records of the design capacity report which showed the landfill capacity to equal or exceed 2.5 million megagrams and/or 2.5 million cubic meters, the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either hardcopy or electronic formats are acceptable.
- (3) The permittee shall monitor the open flare to ensure that it is operated and maintained in conformance with its design and the requirements contained in this permit and as required by 40 CFR 60.18 and OAC rule 3745-21-10(P).
- (4) The permittee shall record the following information each day for the flare and process operations:
- a. all periods during which there was no flare flame when LFG is routed to the flare; and
 - b. the operating times for the flare, monitoring equipment, and the associated emissions unit.
- (5) The permittee shall maintain up-to-date, readily accessible, continuous records of any loss of flame to the open flare when LFG is routed to the flare and/or any incident(s) where the flare is bypassed, using one of the following monitoring systems installed for this purpose:
- a. a/the heat sensing device at the flare flame shall indicate the continuous presence of a flame when LFG is routed to the flare and maintain a record of the total time of any loss of flame.
 - b. a/the gas flow rate measuring device shall record the flow to the flare at least every 15 minutes and shall document the total time of any bypass to the open flare.
 - c. the bypass line valve shall be locked-out in the closed position and a monthly visual inspection shall document that it is always closed. A record of the total time of any bypass, where the lock-out is removed, shall be maintained along with the records of the monthly inspections of the lock-out device.
- (6) The permittee seeking to demonstrate compliance with the landfill gas collection and control requirements through use of an open flare, shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed below, as measured during the initial performance test or compliance determination:
- a. the flare type (i.e., steam-assisted, air-assisted, or nonassisted);
 - b. all visible emissions readings;

- c. heat content determinations;
- d. flow rate or bypass flow rate measurements;
- e. exit velocity determinations made during the performance test as specified in 40 CFR 60.18;
- f. continuous records of the flare flame monitoring; and
- g. records of all periods of operations during which the flare flame is absent.

Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

- (7) The permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed below, as measured during the initial performance test or compliance determination:
- a. the maximum expected gas generation flow rate, as calculated in 40 CFR 60.755(a)(1) and as required in this permit; and
 - b. the density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1) and this permit.

Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

- (8) The permittee of a controlled landfill subject to the provisions of this subpart shall keep for 5 years, up-to-date, readily accessible continuous records of the control equipment operating parameters specified to be monitored in 40 CFR 60.756, 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.
- (9) The permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- (10) The permittee shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under 40 CFR 60.755(b) and as required in this permit.
- (11) The permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing and/or nondegradable wastes, excluded from collection as provided in 40 CFR 60.759(a)(3)(i), as well as any nonproductive areas excluded from collection as provided in 40 CFR 60.759(a)(3)(ii).

- (12) The permittee shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards contained in 40 CFR 60.753 and this permit, the reading in the subsequent month, whether or not the second reading is an exceedance, and the location of each exceedance.
- (13) For the active gas collection system, the permittee shall install a sampling port and a thermometer, or other temperature measuring device, or an access port for temperature measurements at each wellhead and record the following information on a monthly basis:
- the gauge pressure in the gas collection header at each individual well, in pounds per square inch;
 - the nitrogen or oxygen concentration in the landfill gas, in percent; and
 - the temperature of the landfill gas, in degrees Celsius.

If a well exceeds one of the operating parameters as specified in this permit, except as provided under 40 CFR 60.753(b) and (c)**, action shall be initiated to correct the exceedances within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative time line for correcting the exceedance may be submitted to the District Office.

** 40 CFR 60.753(b) allows a positive pressure under three exceptions: in the case of a fire or increased well temperatures; with the use of a geomembrane or synthetic cover; and on a decommissioned well. 40 CFR 60.753(c) allows a higher operating value with a demonstration, including supporting data, that the elevated parameters of temperature and nitrogen or oxygen concentrations could not support a fire or significantly inhibit anaerobic decomposition by killing methanogens.

- (14) The permittee shall monitor surface concentrations of methane on a quarterly basis according to the instrument specifications and procedures provided below. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may revert to annual monitoring; however, during the annual monitoring, any methane reading of 500 ppm or more above background detected, returns the frequency for that landfill back to quarterly monitoring. The permittee shall monitor surface concentrations of methane on a quarterly basis as follows:
- surface concentrations of methane shall be monitored, in ppm, along the entire perimeter of the collection area and along a pattern spaced 30 meters apart (or a site-specific established spacing) and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover for each collection area;

- b. the background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells;
- c. surface emission monitoring shall be performed in accordance with Section 8.3.1 of Method 21 of Appendix A of 40 CFR Part 60, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions; and
- d. any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified below shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements listed in Section c)(9):
 - i. The location of each monitored exceedance shall be marked and the location recorded.
 - ii. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be remonitored within 10 calendar days of detecting the exceedance.
 - iii. If the remonitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the remonitoring shows a third exceedance for the same location, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. No further monitoring of that location is required until the new well(s) or collection device has been installed.
 - iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day remonitoring specified above shall be remonitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 ppm above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified above shall be taken.
 - v. For any location where the monitored methane concentration equals or exceeds 500 ppm above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance.
 - vi. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding time line for installation may be submitted to the Ohio EPA for approval.
- e. The monitor used shall meet the requirements of 40 CFR 60.755(c).

- (15) For the purpose of demonstrating whether the gas collection system flow rate meets the requirements for a sufficient extraction rate, the permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under 40 CFR 60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Director for approval. The permittee is not required to expand the system during the first 180 days after gas collection system startup.
 - (16) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Director for approval.
 - (17) The permit shall maintain records of the total volume of material received each day. These records shall be maintained for a period of not less than three years, and the records shall be available for review by the Northeast District Office of the Ohio EPA during normal business hours.
 - (18) The permittee shall maintain a daily operations log which records/documents any watering activity employed to minimize or eliminate visible emissions of fugitive dust for each waste dumping/placement area; the record shall include the time, the location, and the amount of water employed, in gallons.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly written reports that (a) identify all days during which any visible emission of fugitive dust from non-asbestos-containing materials were observed from operations involving this emissions unit (such as wastes unloading, covering, excavations, and wind erosion) and (b) describe any corrective actions taken to eliminate the visible emissions. These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31, April 30, July 31, and October 31, and shall cover the previous calendar quarters.
 - (2) The permittee shall submit quarterly deviation reports that identify all periods of time during which the flare flame was not present when LFG is routed to the flare or the flare was not maintained as required in this permit. The reports shall include the date, time, and duration of each such period.

- (3) The permittee shall submit semiannual reports to the Director, for the landfill collection and control system, which includes the following recorded information:
- a. value and length of time for each exceedance of the applicable parameters monitored under 40 CFR 60.756, at each wellhead and as required for the control equipment, which would include:
 - i. a positive pressure was not corrected within 5 calendar days, when not meeting the three exceptions in 40 CFR 60.753(b) (fire hazard, synthetic cover, or a decommissioned well);
 - ii. the temperature and oxygen or nitrogen exceeded the applicable limits and was not corrected within 5 calendar days; and
 - iii. any loss of flame to the flare, as detected by the heat sensing device;
 - b. description and duration of all periods when the gas stream is diverted from the control device through a bypass line or any indication of periods of bypass of the control device;
 - c. description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating;
 - d. all periods when the collection system was not operating in excess of 5 days;
 - e. the location of each exceedance of the 500 ppm methane surface concentration, over the background level, and the concentration recorded at each location for which an exceedance was recorded in the previous month; and
 - f. the date of installation and the location of each well or collection system expansion added.

This annual report required by 40 CFR 60.757(f) shall be submitted every six months, as required per 40 CFR 63.1980(a), including information on all deviations that occurred during the 6-month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors shall be determined using a 3-hour monitoring block average. These reports shall be submitted by January 31 and July 31 of each year and shall cover the previous six calendar months.

- (4) The permittee shall submit a closure report to the Division of Air Pollution Control at the Ohio EPA Northeast District Office, within 30 days of waste acceptance cessation. Permanent closure shall be conducted in accordance with the requirements of 40 CFR 258.60; and the Ohio EPA may request additional information, as may be necessary, to verify that all of these conditions are met. If a closure report has been submitted to the Ohio EPA, no additional wastes may be placed into the landfill without filing a notification of modification as described in 40 CFR 60.7(a)(4).



- (5) The permittee shall submit an equipment removal report to the Division of Air Pollution Control at the Ohio EPA Northeast District Office, 30 days prior to removal or cessation of operation of the control equipment. The Ohio EPA may request additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. The equipment removal report shall contain the following information, as specified in 40 CFR 60.757(e)(1):
 - a. a copy of the closure report;
 - b. a copy of the initial performance test report demonstrating that the 15-year minimum control period has expired; and
 - c. dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitations:

CO shall not exceed 22.6 tons/month, averaged over a rolling 12-month period.

Applicable Compliance Method:

The emissions limit for CO is based on using the AP-42 emission factor of 750 lb/10⁶dscf from Chapter 2.4 for Municipal Solid Waste Landfills (11/98), Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices" and using the maximum volume of air per hour from the flare. Estimated CO emissions shall be determined by the following calculation:

$$46 \text{ lb}/1000000 \text{ dscf} \times 2500 \text{ dscf}/\text{min} \times 60 \text{ min}/1 \text{ hr} \times 0.55 \text{ cf CH}_4/\text{cf LFG} = 61.9 \text{ lbs CO}/\text{hr}$$
$$61.9 \text{ lbs CO}/\text{hr} \times 8760 \text{ hrs}/\text{yr} \times 1 \text{ ton}/2000 \text{ lbs} = 271 \text{ tons CO}/\text{yr}$$
$$271 \text{ tons CO}/\text{yr} \times 1 \text{ yr}/12 \text{ months} = 22.6 \text{ tons}/\text{month}$$
 - b. Emission Limitations:

NOx shall not exceed 1.2 tons/month, averaged over a rolling 12-month period.

Applicable Compliance Method:

The emissions limit for NOx is based on using the AP-42 emission factor of 40 lb/10⁶dscf from Chapter 2.4 for Municipal Solid Waste Landfills (11/98), Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices" and

using the maximum volume of air per hour from the flare. Estimated NOx emissions shall be determined by the following calculation:

$$39 \text{ lb}/1000000 \text{ dscf} \times 2500 \text{ dscf}/\text{min} \times 60 \text{ min}/1 \text{ hr} \times 0.55 \text{ cf CH}_4/\text{cf LFG} = 3.3 \text{ lbs NOx}/\text{hr}$$

$$3.3 \text{ lbs NOx}/\text{hr} \times 8760 \text{ hrs}/\text{yr} \times 1 \text{ ton}/2000 \text{ lbs} = 14.5 \text{ tons NOx}/\text{yr}$$

$$14.5 \text{ tons NOx}/\text{yr} \times 1 \text{ yr}/12 \text{ months} = 1.2 \text{ tons NOx}/\text{month}$$

c. Emission Limitations:

PE shall not exceed 0.5 ton/month, averaged over a rolling 12-month period.

Applicable Compliance Method:

The emissions limit for PE is based on using the AP-42 emission factor of 17 lb/10⁶dscf from Chapter 2.4 for Municipal Solid Waste Landfills (11/98), Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices" and using the maximum volume of air per hour from the flare. Estimated PE emissions shall be determined by the following calculation:

$$15 \text{ lb}/1000000 \text{ dscf} \times 2500 \text{ dscf}/\text{min} \times 60 \text{ min}/1 \text{ hr} \times 0.55 \text{ cf CH}_4/\text{cf LFG} = 1.4 \text{ lbs PE}/\text{hr}$$

$$1.4 \text{ lbs}/\text{hr} \times 8760 \text{ hrs}/\text{yr} \times 1 \text{ ton}/2000 \text{ lbs} = 6.1 \text{ tons PE}/\text{yr}$$

$$6.1 \text{ tons PE}/\text{yr} \times 1 \text{ yr}/12 \text{ months} = 0.5 \text{ ton}/\text{month}$$

d. Emission Limitations:

SO₂ shall not exceed 0.4 ton/month, averaged over a rolling 12-month period.

Applicable Compliance Method:

The emissions limit for SO₂ is based on using the AP-42 emission factor of 46.9 ppmv from Chapter 2.4 for Municipal Solid Waste Landfills (11/98), and using the maximum volume of air per hour from the flare. Estimated SO₂ emissions shall be determined by the following calculation:

$$46.9 \text{ ppmv SO}_2/1000000 \text{ dscf} \times 2500 \text{ dscf}/\text{min} \times 60 \text{ min}/\text{hr} \times 64 \text{ lb}/\text{lbmole} \times 1 \text{ atm} \times \text{lbmole}^\circ\text{R}/0.7302 \text{ atmcf} \times 1/520^\circ\text{R} \times 4.38 = 5.2 \text{ tons}/\text{yr}$$

$$5.2 \text{ tons SO}_2/\text{yr} \times 1 \text{ yr}/12 \text{ months} = 0.4 \text{ ton}/\text{month}$$

e. Emission Limitation:

Visible emissions of non-asbestos fugitive dust (load-in and wind erosion) from this emissions unit shall not exceed 20% opacity as a 3-minute average.

Applicable Compliance Method:

If required, compliance shall be determined by visible emission evaluations performed in accordance with USEPA Reference Method 9 as set forth in "Appendix A on Test Methods" in 40 CFR Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraph (B)(3)(a) and (B)(3)(b) of OAC rule 3745-17-03(B)(3).

f. Emission Limitation:

There shall be no visible emissions from the flare, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

Applicable Compliance Method:

Compliance with the visible emissions limitation shall be determined in accordance with U.S. EPA Method 22 in Appendix A of 40 CFR Part 60 or any approved alternates.

- (2) The nitrogen or oxygen concentration shall be monitored at each landfill gas collection well as required in this permit and shall be determined as follows:
- a. The nitrogen level shall be determined using Method 3C from 40 CFR Part 60, Appendix A, unless an alternative test method is approved by the Director.
 - b. The oxygen level shall be determined by an oxygen meter using Method 3A or 3C from 40 CFR Part 60, Appendix A, unless an alternative test method is approved by the Director, except that:
 - i. the span shall be set so that the regulatory limit is between 20 and 50 percent of the span;
 - ii. a data recorder is not required;
 - iii. only two calibration gases are required, a zero and span, and ambient air may be used as the span;
 - iv. a calibration error check is not required; and
 - v. the allowable sample bias, zero drift, and calibration drift are plus or minus 10 percent.
- (3) After the installation of a collection and control system in compliance with 40 CFR 60.755, the permittee shall calculate the NMOC emission rate for purposes of determining when the system can be removed, as provided in 40 CFR 60.752(b)(2)(v), using the following procedures to calculate the mass emission rate of NMOC and by applying the testing results in the following equation:

MNMOC = 0.00189 (QLFG) CNMOC

where,

MNMOC = mass emission rate of NMOC, megagrams per year

QLFG = flow rate of landfill gas, cubic meters per minute

CNMOC = NMOC concentration, parts per million by volume as hexane

- a. The flow rate of landfill gas, QLFG, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of Appendix A of 40 CFR Part 60.
 - b. The average NMOC concentration, CNMOC, shall 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 Method 25C or Method 18 from 40 CFR Part 60, Appendix A. If using Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C by six to convert from CNMOC as carbon to CNMOC as hexane.
 - c. The permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator of the U.S. Environmental Protection Agency.
- (4) The permittee shall maintain the following instrumentation specifications and procedures in order to demonstrate compliance with surface methane monitoring:
- a. The portable analyzer for surface methane shall meet the instrument specifications provided in section 3 of Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC.
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.
 - c. To meet the performance evaluation requirements in section 3.1.3 of Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of section 4.4 of Method 21 of Appendix A of 40 CFR Part 60 shall be used.
 - d. The calibration procedures provided in section 4.2 of Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey.
- (5) The permittee shall maintain the following information for the life of the control equipment (recovery and treatment system and/or flare) as measured during the initial performance test or compliance demonstration:

a. the maximum expected gas generation flow rate, in cubic meters/year as calculated based on the following:

i. For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o \times R \times \{(e^{-kc}) - (e^{-kt})\}$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagram per year

k = methane generation rate constant, per year

t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less (if the equipment is installed after closure, t is the age of the landfill at installation), years

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

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

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

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

k = methane generation rate constant, per year

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, in megagrams

t_i = age of the i^{th} section, in 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, the equations above. If the landfill is still

accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using either of the equations above or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment. (The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Ohio EPA.)

- b. For the purposes of determining sufficient density of gas collectors for compliance with a collection system designed to handle the maximum expected landfill gas flow rate, the permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Director, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.
- (6) The net heating value of the landfill gas being combusted at the flare, as determined in 40 CFR 60.18(f)(3), shall be calculated from the concentration of methane in the landfill gas, as measured by a minimum of three 30-minute Method 3C samples, or other Ohio EPA approved method. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable.

$$H_T = k \sum_{i=1}^n C_i H_i$$

where:

H_T = net heating value of the sample, MJ/scm (Btu/scf), shall be calculated from the concentration of methane in the landfill gas, as measured by a minimum of three 30-minute Method 3C samples or other Ohio EPA approved method;

k = constant, 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal), where the standard temperature for "g mole/scm" is 20 degrees Celsius;

C_i = concentration of methane sample "i" in ppm, as measured by Reference Method 3C or other Ohio EPA approved method; and

H_i = net heat of combustion of sample component "i", kcal/g mole at 25 degrees Celsius and 760 mm Hg.

The conversion factor of "26.84 Btu scm/MJ scf" can be used to convert the net heating value of the gas (H_T) from MJ/scm to Btu/scf.

- (7) The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure) of the flare header or headers that feed the flare, as determined by Reference Methods 2, 2A, 2C, or 2D, as appropriate, by the unobstructed (free) cross sectional area of the flare tip. 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).



The conversion factor of "3.281 ft/m" can be used to convert the velocity from m/sec to ft/sec.

g) Miscellaneous Requirements

- (1) The flare completed initial performance test on May 9, 2002 and demonstrated compliance with 40 CFR 60.18(c)(1), (c)(3)(i)(B), (c)(3)(ii), (c)(4)(i), and (f)(1).