



State of Ohio Environmental Protection Agency

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5/26/2009

Certified Mail

Edgar Irelan
Hoffman Road Landfill
3962 Hoffman Road
Toledo, OH 43611

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0448011576
Permit Number: P0104952
Permit Type: Administrative Modification
County: Lucas

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR
No	CEMS
Yes	MACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED

Dear Permit Holder:

Enclosed please find a final 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.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission ("ERAC") under Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and describe the action complained of and the grounds for the appeal. The appeal must be filed with the ERAC within thirty (30) days after notice of the Director's action. A filing fee of \$70.00 must be submitted to the ERAC with the appeal, although the ERAC, has discretion to reduce the amount of the filing fee if you can demonstrate (by affidavit) that payment of the full amount of the fee would cause extreme hardship. If you file an appeal of this action, you must notify Ohio EPA of the filing of the appeal (by providing a copy to the Director) within three (3) days of filing your appeal with the ERAC. Ohio EPA requests that a copy of the appeal also be provided to the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the ERAC at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

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. If you have any questions regarding this permit, please contact the Toledo Department of Environmental Services. This permit has been posted to the Division of Air Pollution Control (DAPC) Web page <http://www.epa.state.oh.us/dapc>.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 *Via E-Mail Notification*
Toledo Department of Environmental Services

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director



**State of Ohio Environmental Protection Agency
Division of Air Pollution Control**

FINAL

**Air Pollution Permit-to-Install
for
Hoffman Road Landfill**

Facility ID: 0448011576
Permit Number: P0104952
Permit Type: Administrative Modification
Issued: 5/26/2009
Effective: 5/26/2009



Air Pollution Permit-to-Install
for
Hoffman Road Landfill

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State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

Authorization

Facility ID: 0448011576
Facility Description: Municipal solid waste landfill expansion, Addition of gas collection and disposal system (flare) modification.
Application Number(s): A0037632
Permit Number: P0104952
Permit Description: Administrative modification of the permit for F002 landfill operations as described in PTI 04-01190. Terms and conditions were added appropriate to an alternate operating scenario in which landfill gas would be treated on site and made available for subsequent sale or use. Intended operation is with a collection system (operated by the Hoffman Road Landfill) and control system (owned and operated by the City of Toledo, Division of Water Reclamation premise number 0448010737, emissions unit P109) as allowed by 40 CFR 60.752(b)(2)(iii) and (iv), but not previously formalized in the permit terms.
Permit Type: Administrative Modification
Permit Fee: \$100.00
Issue Date: 5/26/2009
Effective Date: 5/26/2009

This document constitutes issuance to:

Hoffman Road Landfill
4545 Hoffman Rd
Toledo, OH 43611

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

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Toledo Department of Environmental Services
348 South Erie Street
Toledo, OH 43604
(419)936-3015

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

Chris Korleski
Director



State of Ohio Environmental Protection Agency
 Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

Authorization (continued)

Permit Number: P0104952

Permit Description: Adminstrative modification of the permit for F002 landfill operations as described in PTI 04-01190. Terms and conditions were added appropriate to an alternate operating scenario in which landfill gas would be treated on site and made available for subsequent sale or use. Intended operation is with a collection system (operated by the Hoffman Road Landfill) and control system (owned and operated by the City of Toledo, Division of Water Reclamation premise number 0448010737, emissions unit P109) as allowed by 40 CFR 60.752(b)(2)(iii) and (iv), but not previously formalized in the permit terms.

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
Superseded Permit Number:	04-01190
General Permit Category and Type:	Not Applicable



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

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 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) The permittee must comply with all terms and conditions of this permit. 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 Toledo Department of Environmental Services.



- (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 Toledo Department of Environmental Services. 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 (i.e., postmarked) to the Toledo Department of Environmental Services 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 Toledo Department of Environmental Services 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) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) 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.
- c) 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.
- d) The permittee shall submit progress reports to the Toledo Department of Environmental Services 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 Toledo Department of Environmental Services.
- 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 Toledo Department of Environmental Services. 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



(i.e., postmarked) 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).

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 party 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 through completion of the annual PER covering the last period of operation 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 PER covering the last period the emissions unit operated.



No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a PER, 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 the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

13. Construction Compliance Certification

The applicant shall identify the following dates in the online 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 (i.e., postmarked), 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 Toledo Department of Environmental Services must be notified in writing of any transfer of this permit.

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.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

B. Facility-Wide Terms and Conditions



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

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.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Final Permit-to-Install
Permit Number: P0104952
Facility ID: 0448011576
Effective Date: 5/26/2009

C. Emissions Unit Terms and Conditions



1. F002, Landfill

Operations, Property and/or Equipment Description:

Municipal Solid Waste Landfill

- 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 operations(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. 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
	municipal solid waste (MSW) landfill equipped with an active gas collection and open flare control system (identified as P901 in PTI 04-01190)	
a.	40 CFR Part 60, Subpart A	see b)(2)a.
b.	40 CFR Part 60, Subpart WWW	see b)(2)b. through b)(2)l.
c.	40 CFR Part 63, Subpart A	see b)(2)m. and b)(2)n.
d.	40 CFR Part 63, Subpart AAAA	see b)(2)o. through b)(2)q.
	stack emissions (controlled emissions from the flare)	
e.	OAC rule 3745-31-05(A)(3) established by PTI 04-01190 as modified 12/04/01 and identified as P901 in that permit	43.2 pounds per hour of carbon monoxide (CO) 189.1 tons per year of CO 2.33 pounds per hour of nitrogen oxides (NO _x) 10.24 tons per year of NO _x 0.97 pound per hour of particulate emissions (PE) 4.25 tons per year of PE 0.8 pound per hour of sulfur dioxide (SO ₂) 3.53 tons per year of SO ₂ 0.3 pound per hour of nonmethane organic compounds (NMOC) 1.2 tons per year of NMOC 0.01 pound per hour of chlorine gas (Cl ₂) 0.03 ton per year of Cl ₂



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.01 pound per hour of hydrochloric acid (HCl) 0.036 ton per year of HCl 47.3 pounds per hour of methane 207 tons per year of methane see b)(2)r.
f.	OAC rule 3745-17-07(A)(1)	see b)(2)s.
fugitive landfill emissions		
g.	OAC rule 3745-31-05(A)(3) established by PTI 04-01190 as modified 12/04/01 and identified as P901 in that permit	1.93 tons per year of PE 11.9 tons per year of particulate emissions less than or equal to 10 microns in diameter (PM10) 7.8 tons per year tons per year VOC 20 tons per year of NMOC 3446 tons per year methane 0.6 ton per year Cl ₂ see b)(2)t. through b)(2)z.
h.	OAC rule 3745-17-07(B)(1)	visible fugitive particulate emissions shall not exceed 20% opacity as a 3-minute average
i.	OAC rule 3745-17-08(B)	see b)(2)aa.

(2) Additional Terms and Conditions

- a. 40 CFR Part 60, Subpart A provides applicability provisions, definitions, and other general provisions that are applicable to emissions units affected by 40 CFR Part 60.
- b. The permittee shall 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 design plan approved by the Director (the Toledo Division of Environmental Services). 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; or
 - ii. 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 of the landfill gas powered combustion turbine owned and operated by the City of Toledo, Division of Water Reclamation premise number 0448010737, as required for emissions unit P109 in PTI 04-01485 as issued 2/12/2008, 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).

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.

[Authority for term: 40 CFR 60.752(b)]

- c. 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 either:
 - i. the open flare, which is designed and operated in accordance with 40 CFR 60.18; or
 - ii. the gas treatment system, which shall process the collected gas for subsequent sale or use, with a collection system (operated by the Hoffman Road Landfill) and control system (owned and operated by the City of Toledo, Division of Water Reclamation premise number 0448010737, emissions unit P109) 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.

[Authority for term: 40 CFR 60.752(b)(2)(iii) and (iv)]

- d. 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.

[Authority for term: 40 CFR 60.752(b)(2)(ii)(A) and 40 CFR 60.753(a)]

- e. 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.

[Authority for term: 40 CFR 60.755(b)]

- f. An open flare shall satisfy the following requirements:
- 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 pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. 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 iii.(a) and the maximum tip velocity in paragraph iii.(b), or shall comply with the alternative requirements in paragraph iii.(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
 - (ii) 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):



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

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.

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

$$V_{\text{max}} = 8.706 + 0.7084 (\text{HT})$$

where:

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

8.706 = constant;

0.7084 = constant; and

HT = 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:

$$V_{\text{max}} = (X_{\text{H}_2} K_1) K_2$$

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.

[Authority for term: 40 CFR 60.18 and OAC rule 3745-21-10(P)]

- g. 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 the pilot light or the flame itself to indicate the continuous presence of a flame; and
- ii. 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.

[Authority for term: 40 CFR 60.756(c)]

- h. 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.

[Authority for term: 40 CFR 60.752(b)(2)(v)]

- i. 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.

[Authority for term: 40 CFR 60.759(a)(1) and (2)]

- j. 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.

[Authority for term: 40 CFR 60.755(a)(1), in part]

- k. 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

$C_{\text{NMOC}} = 4,000$ 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.

[Authority for term: 40 CFR 60.759(a)(3)]

- I. 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.

[Authority for term: 40 CFR 60.759(b)]

- m. 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.

[Authority for term: 40 CFR 60.755(e)]

- n. The permittee shall develop and implement a written startup, shutdown, and malfunction (SSM) plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site.

[Authority for term: 40 CFR 63.1960]

- o. 40 CFR Part 63, Subpart A provides applicability provisions, definitions, and other general provisions that are applicable to emissions units affected by 40 CFR Part 63.
- p. 40 CFR Part 63, National Emissions Standards for Hazardous Air Pollutants:

- i. Subpart AAAA establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires all landfills described in Section 63.1935 to meet the requirements of 40 CFR Part 60, Subpart or WWW and requires timely control of bioreactors. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.
- ii. Municipal solid waste landfill or MSW landfill means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. A municipal solid waste landfill may also receive other types of RCRA Subtitle D wastes (see Section 257.2 of this chapter) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of a municipal solid waste landfill may be separated by access



roads. A municipal solid waste landfill may be publicly or privately owned. A municipal solid waste landfill may be a new municipal solid waste landfill, an existing municipal solid waste landfill, or a lateral expansion.

- iii. This MSW landfill is an existing affected source. The facility is an existing source for Subpart AAAA because this MSW landfill has not commenced construction or reconstruction after November 7, 2000. The facility is an affected source for Subpart AAAA as defined in 40 CFR 63.1935(a)(3) because the facility has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year NMOC as calculated according to Section 60.754(a) of Subpart WWW of the New Source Performance Standards,
- iv. The permittee shall comply with this subpart by January 16, 2004. The permittee is no longer required to comply with this subpart when controls are no longer required by 40 CFR 60.752(b)(2)(v) of Subpart WWW.
- v. As specified in Subpart AAAA, 40 CFR 63.1955, this MSW landfill is subject to the requirements of 40 CFR Part 60, Subpart WWW, the Subpart AAAA requirements in 40 CFR 63.1960 through 63.1985, and the following sections of 40 CFR Part 63 Subpart A, the General Provisions of the National Emissions Standards for Hazardous Air Pollutants for Source Categories (NESHAPS):

63.1(a), 63.1(b), 63.1(e), 63.2, 63.4, 63.5(b), 63.6(e), 63.6(f), 63.10(b)(2)(i) through 63.10(b)(2)(v), 63.10(d)(5), 63.12(a), and 63.15.
- vi. For approval of collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions, the permittee must follow the procedures in 40 CFR 60.752(b)(2). If alternatives have already been approved under 40 CFR Part 60 Subpart WWW or the federal plan, or EPA approved and effective State or tribal plan, these alternatives can be used to comply with this subpart, except that all affected sources must comply with the SSM requirements in Subpart A of 40 CFR Part 63 as specified in Table 1 of Subpart AAAA and all affected sources must submit compliance reports every 6 months as specified in Section 63.1980(a) and (b), including information on all deviations that occurred during the 6-month reporting period.
- vii. **General and Continuing Compliance Requirements**

Compliance is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data, collected under 40 CFR 60.756(b)(1), (c)(1), and (d) of Subpart WWW, are used to demonstrate compliance with the operating conditions for control systems. If a deviation occurs, the permittee has failed to meet the control device operating conditions described in Subpart AAAA and has deviated from the requirements of Subpart AAAA. Finally, the permittee must



develop and implement a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of Subpart AAAA.

viii. Deviations

- (a) Emissions limitation means any emission limit, opacity limit, operating limit, or visible emissions limit.
- (b) Deviation means any instance in which an affected source subject to Subpart AAAA, or an owner or operator of such a source:
 - (i) fails to meet any requirement or obligation established by Subpart AAAA, including, but not limited to, any emissions limitation (including any operating limit) or work practice standard;
 - (ii) fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or
 - (iii) fails to meet any emission limitation (including any operating limit), or work practice standard in Subpart AAAA during SSM, regardless of whether or not such failure is permitted by Subpart AAAA.
- (c) For the purposes of the landfill monitoring and SSM plan requirements, a deviation occurs when the control device operating parameter boundaries described in 40 CFR 60.758(c)(1) of Subpart WWW are exceeded, or, when an SSM plan is not developed, implemented, or maintained on site.

The permittee must develop and implement a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of Subpart AAAA.

- q. The provisions of subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices.
- r. Testing shall be conducted in accordance with the provisions of 40 CFR Part 60, Subpart A, Section 60.8 and 40 CFR Part 60, Subpart AAAA, Section 60.1300.
- s. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart WWW.
- t. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



- u. The landfill areas and operations that are covered by this permit and subject to the requirements for fugitive particulate emissions are listed below:
 - all landfill areas where solid wastes are deposited;
 - overburden removal;
 - construction of cells;
 - construction of haul roads;
 - MSW dumping, transfer, compaction and covering;
 - bulldozing operations;
 - wind erosion; and
 - closure of cells.
- v. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(B)(1).
- w. The permittee shall employ best available control measures on all landfill operations associated with the landfill cell for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, the permittee has committed to treat the cell load-in operations (i.e., MSW dumping, transfer, compaction and covering) with water and/or any other suitable dust suppression chemicals at sufficient treatment frequencies to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.
- x. The above-mentioned control measures shall be employed for each cell load-in operation of the landfill cell 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 measures shall continue during any such operation until further observation confirms that use of the measures is unnecessary.
- y. The permittee shall employ best available control measures on all surface working operations associated with the landfill cell for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, the permittee has committed to treat the surface working operations (i.e., overburden removal, construction of cells, construction of haul roads, bulldozing operations, and closure of cells) with water and/or other suitable dust suppression chemicals at sufficient treatment frequencies to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.
- z. The permittee shall employ best available control measures for wind erosion from surfaces associated with the landfill cell for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the



permittee's permit application, the permittee has committed to treat the landfill surface with water and/or other suitable dust suppression chemicals at sufficient treatment frequencies to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

- aa. The above-mentioned control measures shall be employed for surface operations and wind erosion from the landfill cell if the permittee determines, as a result of the inspection conducted pursuant to the monitoring section of this permit, that the control measure(s) are necessary to ensure compliance with the above-mentioned applicable requirements. Implementation of the control measure(s) shall not be necessary for the landfill cell that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements.
- bb. Implementation of the above-mentioned control measures, b)(2)t. through b)(2)z., in accordance with the terms and conditions of this permit is appropriate and sufficient to satisfy the requirements of OAC rule 3745-17-08.

c) Operational Restrictions

- (1) 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.

[Authority for term: 40 CFR 60.753(a)]

- (2) 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.

[Authority for term: 40 CFR 60.753(b)]

- (3) 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.

[Authority for term: 40 CFR 60.753(c)]

- (4) 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.

[Authority for term: 40 CFR 60.753(d)] and [40 CFR 60.755(c)(4)(v)]

- (5) 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.

[Authority for term: 40 CFR 60.753(e)]

- (6) The permittee shall operate the control (flare) and/or treatment system (prior to export of the landfill gas) at all times when the collected gas is routed to the respective system.

[Authority for term: 40 CFR 60.753(f)]

- (7) 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.

[Authority for term: 40 CFR 60.753(g)]

- (8) The permittee shall operate the flare within the parameter ranges established during the initial or most recent performance test. The parameters established shall be based on the control device installed and may include a heat sensing device, gas flow rate measuring device, and/or gauge pressure device in the gas collection header.

[Authority for term: 40 CFR 60.752(b)(2)(iii)(B)(2)]



- (9) The permittee shall not accept or dispose of any "asbestos material" as defined in OAC rule 3745-20-01, or asbestos-containing waste material as defined in 40 CFR 61.141, containing more than 1 percent asbestos as determined using the methods specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy. The receipt or disposal of any asbestos or asbestos-containing waste without proper approval of the Ohio EPA is a violation of the NESHAPS for asbestos and the Ohio EPA Permit to Install rules.

[Authority for term: OAC rule 3745-77-07(A)(1)]

d) Monitoring and/or Recordkeeping Requirements

- (1) 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.

[Authority for term: 40 CFR 60.758(a)]

- (2) The permittee shall monitor the 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).

[Authority for term: 40 CFR 60.18 and OAC rule 3745-21-10(P)]

- (3) The permittee shall maintain up-to-date, readily accessible, continuous records of any loss of flame to the open flare or flare pilot and/or any incident(s) where the flare is bypassed, using one of the following monitoring systems installed for this purpose:
 - a. the heat sensing device at the pilot light or flame shall indicate the continuous presence of a flame and maintain a record of the total time of any loss of flame.
 - b. 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.

[Authority for term: 40 CFR 60.758(c)(2) and (4)]

- (4) During any periods of time in which collected gas is routed to the treatment system (prior to export of the landfill gas), the permittee shall monitor and record the operating parameters which indicate proper performance of the treatment system in compliance with the requirements of 40 CFR 60.756(d).

[Authority for term: 40 CFR 60.756(d)]



- (5) At all times when the flare is bypassed and collected gas is routed to the treatment system (prior to export of the landfill gas), a record of the total time of the bypass shall be maintained along with the records of (3)c.

[Authority for term: 40 CFR 60.758(c)(2) and 40 CFR 60.756(d)]

- (6) When demonstrating compliance with the landfill gas collection and control requirements through use of an open flare, 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 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 pilot flame or flare flame monitoring; and
 - g. records of all periods of operations during which the pilot flame of 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.

[Authority for term: 40 CFR 60.758(b)(4)]

- (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.

[Authority for term: 40 CFR 60.758(b)(1)]

- (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.



[Authority for term: 40 CFR 60.758(c)]

- (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.

[Authority for term: 40 CFR 60.758(d)]

- (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.

[Authority for term: 40 CFR 60.758(d)(1)]

- (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).

[Authority for term: 40 CFR 60.758(d)(2)]

- (12) The permittee shall keep for at least 5 years up to date, readily accessible records of all collection and control system (flare) 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.

[Authority for term: 40 CFR 60.758(e)]

- (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:

- a. the gauge pressure in the gas collection header at each individual well, in pounds per square inch;
- b. the nitrogen or oxygen concentration in the landfill gas, in percent; and
- c. 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 Toledo Division of Environmental Services for approval.

^{***} 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.

[Authority for term: 40 CFR 60.756(a)]

- (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:
- a. 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 A.II:
 - 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).

[Authority for term: 40 CFR 60.755(c) and 40 CFR 60.756(f)]

- (15) The permittee shall implement a program to monitor for the integrity of the cover on a monthly basis and implement cover repairs as necessary.

[Authority for term: 40 CFR 60.755(c)(5)]

- (16) 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 a during the first 180 days after gas collection system startup.

[Authority for term: 40 CFR 60.755(a)(3) and (4)]

- (17) 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.

[Authority for term: 40 CFR 60.755(a)(5)]



- (18) Except as otherwise provided in this section, the permittee shall perform daily inspections of the following landfill areas and operations:

all landfill areas where solid wastes are deposited

overburden removal

construction of cells and haul roads

MSW dumping, transfer, compaction and covering

bulldozing operations

wind erosion

closure of cells

[Authority for term: OAC rule 3745-77-07(C)(1)]

- (19) The purpose of the inspections is to determine the need for implementing the above-mentioned control measures for fugitive landfill particulate emissions. The inspections shall be performed during representative, normal operating conditions. No inspection shall be necessary for a landfill operating area that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Any required inspection that is not performed due to any of the above identified events shall be performed as soon as such event(s) has (have) ended, except if the next required inspection is within one week.

[Authority for term: OAC rule 3745-77-07(C)(1)]

- (20) The permittee may, upon receipt of written approval from the Toledo Division of Environmental Services (TDOES), modify the above-mentioned inspection frequencies if operating experience indicates that less frequent inspections would be sufficient to ensure compliance with the above-mentioned applicable requirements. Such modified inspection frequencies would not be considered a minor or significant modification that would be subject to the Title V permit modification requirements in paragraphs (C)(1) and (C)(3) of OAC rule 3745-77-08.

[Authority for term: OAC rule 3745-77-07(C)(1)]

- (21) The permittee shall maintain records of the following information:
- a. the date and reason any required inspection was not performed, including those inspections that were not performed due to snow and/or ice cover or precipitation;
 - b. the date of each inspection where it was determined by the permittee that it was necessary to implement the control measures;
 - c. the dates the control measures were implemented; and



- d. on a calendar quarter basis, the total number of days the control measures were implemented and the total number of days where snow and/or ice cover or precipitation were sufficient to not require the control measures.

The information required in d)(21)d. shall be kept separately for each landfill area and operation and shall be updated on a calendar quarter basis within 30 days after the end of each calendar quarter.

[Authority for term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

- (1) 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;
 - 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 (flare) through a bypass line (including when exporting landfill gases offsite) or any indication of periods of bypass of all control devices (flare and offsite landfill gas powered combustion turbine);
 - c. description and duration of all periods when the control devices were not operating for a period exceeding 1 hour and length of time the control devices were 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.



[Authority for term: 40 CFR 63.1955(c) and 63.1980(a), 40 CFR 60.757(f)]

- (2) Pursuant to the New Source Performance Standards (NSPS), the source owner/operator is hereby advised of the requirements to report the following at the appropriate times:
- a. construction date (no later than 30 days after such date);
 - b. actual start up date (within 15 days after such date); and
 - c. date of performance testing (if required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency

DAPC Permit Management Unit

Lazarus Government Center

P.O. Box 1049

Columbus, OH 43216 1049

and

Toledo Division of Environmental Services

348 S. Erie St.

Toledo, OH 43604

[Authority for term: 40 CFR 60.7]

- (3) The permittee, in seeking to comply with 40 CFR 60.752(b)(2)(iii) or the control requirements of this subpart, shall include the following information with the initial performance test report required under 40 CFR 60.8:
- a. 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;
 - b. 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;
 - c. 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;
 - d. 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;



- e. 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
- f. The provisions for the control of off site migration.

[Authority for term: 40 CFR 60.757(g)]

- (4) The permittee shall submit a closure report to the Director (Toledo Division of Environmental Services), 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).

[Authority for term: 40 CFR 60.757(d)]

- (5) The permittee shall submit an equipment removal report to the Director (Toledo Division of Environmental Services), 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.

[Authority for term: 40 CFR 60.757(e)]

- (6) The permittee shall submit quarterly deviation reports that identify any of the following occurrences:
 - a. each day during which an inspection required by d)(18) was not performed by the required frequency, excluding an inspection which was not performed due to an exemption for snow and/or ice cover or precipitation;
 - b. each instance when a control measure required by b)(2)w., b)(2)y. or b)(2)z. that was to be implemented as a result of an inspection, was not implemented;

[Authority for term: OAC rule 3745-77-07(C)(1)]

- (7) The permittee shall submit semi-annual reports for all sources affected by the provisions of the SSM requirements specified in Table 1 of 40 CFR Part 63, Subpart AAAA. These reports shall be submitted to the Toledo Division of Environmental Services by March 30 and September 30 and shall cover the previous six-month period, July 1-December 31 and January 1-June 30, respectively.



f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

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 shall be demonstrated in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR Part 60. Alternate, equivalent methods may be used upon approval by the TDOES.

[Authority for term: OAC rule 3745-77-07(C)(1)]

b. Emission Limitation:

visible fugitive particulate emissions shall not exceed 20% opacity as a 3-minute average

Applicable Compliance Method:

Compliance shall be demonstrated in accordance with Test Method 9 as set forth in "Appendix on Test Methods" in 40 CFR Part 60 using the methods and procedures specified in OAC rule 3745-17-03(B)(3). Alternate, equivalent methods may be used upon approval by the TDOES.

[Authority for term: OAC rule 3745-77-07(C)(1)]

c. Emission Limitation:

43.2 pounds per hour of CO

Applicable Compliance Method:

The emission limitation represents the potential to emit calculated using AP-42 Section 2.4-1 (dated 11/98), an emission factor for CO of 12,000 kg CO/10⁶ dscm methane, a maximum methane flow rate of 1.93x10⁷ m³/yr, a conversion of 0.4536 kg/pound, and 8760 hrs/yr. Since the emission limitation represents the emission unit's potential to emit, no record keeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]

d. Emission Limitation:

3.4 pounds per hour of NO_x

Applicable Compliance Method:



The emission limitation represents the potential to emit calculated using AP-42 Section 2.4-1 (dated 11/98), an emission factor for NO_x of 270 kg NO_x/10⁶ dscm methane, a maximum methane flow rate of 1.93x10⁷ m³/yr, a conversion of 0.4536 kg/pound, and 8760 hrs/yr. Since the emission limitation represents the emission units' potential to emit, no record keeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]

e. Emission Limitations:

0.3 pound per hour of NMOC

47.3 pounds per hour of methane

Applicable Compliance Method:

The emission limitations were developed by applying a 98% reduction efficiency for control with a flare to a maximum calculated flare gas stream of 13.8 lbs of NMOC/hr and 2,360 lbs of methane/hr. AP-42 Section 2.4.4 (dated 11/98) emission factors were used to calculate the total uncontrolled methane and NMOCs. A destruction efficiency of 98% was used to calculate the amount of methane and NMOCs destroyed. The remainder (207 tons per year of methane and 1.2 tons per year of NMOCs) are emitted over 8760 hrs/yr. Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through the flare monitoring and record keeping requirements specified in d).

[Authority for term: OAC rule 3745-77-07(C)(1)]

f. Emission Limitation:

0.97 pound per hour of particulate emissions

Applicable Compliance Method:

The emission limitation represents the potential to emit calculated using AP-42 Section 2.4-1 (dated 11/98), an emission factor for PE of 270 kg PE/10⁶ dscm methane, a maximum methane flow rate of 1.93x10⁷ m³/yr, a conversion of 0.4536 kg/pound, and 8760 hrs/yr. Since the emission limitation represents the emission units' potential to emit, no recordkeeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]

g. Emission Limitation:

0.8 pound per hour of SO₂



Applicable Compliance Method:

The emission limitation represents the potential to emit calculated assuming that all sulfur containing compounds in landfill gas react to form SO₂. The potential to emit calculations were based on a sulfur compound concentration of 46.9 ppm from AP-42 Section 2.4-1 (dated 11/98), a maximum gas flow rate to the flare of 1.93x10⁷ m³/yr, a conversion of 0.4536 kg/pound, and 8760 hrs/yr. Since the emission limitation represents the emission units' potential to emit, no record keeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]

h. Emission Limitation:

0.01 pound per hour of HCl

Applicable Compliance Method:

The emission limitation represents the potential to emit calculated assuming that all chlorine containing compounds collected in landfill gas react to form HCl during combustion in the flare. The potential to emit calculations were based on a chlorine compound concentration of 42.0 ppm from AP-42 Section 2.4-1 (dated 11/98), a maximum chlorine compound flow rate to the flare of 1.46x10³ m³/yr, a conversion of 0.4536 kg/lb, and 8760 hrs/yr. Since the emission limitation represents the emission units' potential to emit, no record keeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]

i. Emission Limitation:

0.01 pound per hour of Cl₂

Applicable Compliance Method:

The emission limitation represents the potential to emit calculated assuming that all chlorine containing compounds collected in landfill gas react to form HCl during combustion in the flare. AP-42 provides an average capture efficiency of 75% and an estimated control efficiency of 98% for the flare in Section 2.4 (dated 11/98). f)(2) estimates the uncontrolled Cl₂ emissions to be 2.3 tons per year and the fugitive to be (1-.75) or 0.6 tons per year of Cl₂. The difference (2.3-0.6 tons per year) is the amount of Cl₂ that goes to the flare where 98% is combusted to HCl and the remaining 2% or 0.3 tons per year passes through the flare. Conversion of 0.3 tons per year Cl₂ to pound per hour of Cl₂ utilizes conversion factors of 8760 hrs/yr and 2000 lbs/ton. Since the emission limitation represents the emission units' potential to emit, no record keeping, deviation reporting, or compliance method calculations are required to demonstrate compliance with the above limitation.

[Authority for term: OAC rule 3745-77-07(C)(1)]



j. Emission Limitations:

- 1.2 tons per year of NMOC
- 207 tons per year of methane
- 4.25 tons per year of particulate emissions
- 3.53 tons per year of SO₂
- 14.7 tons per year of NO_x
- 189.1 tons per year of CO
- 0.036 ton per year of HCl
- 0.03 ton per year of Cl₂

Applicable Compliance Method:

The tons per year limitations were developed by multiplying the pound per hour limitations by the maximum operating schedule of 8760 hrs/yr and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance will also be shown with the annual limitations.

[Authority for term: OAC rule 3745-77-07(C)(1)]

k. Emission Limitation:

- 1.93 tons per year of PE
- 11.9 tons per year of particulate emissions as PM10

Applicable Compliance Method:

Emission limitations were developed as follows:

- i. applying a 70% control efficiency for dust suppression to a maximum potential uncontrolled emission rate of 12.35 tons per year of particulate emissions as PM10 for unpaved gravel roadways during construction, based on AP-42, section 13.2.2 (dated 9/98) emission factors;
- ii. a maximum potential uncontrolled emission rate of 0.03 tons per year of particulate emissions for material handling operations, based on AP-42, section 13.2.4 (dated 1/95) emission factors;
- iii. a maximum potential uncontrolled emission rate of 1.9 tons per year of particulate emissions for wind erosion from exposed areas, based on AP-42, table 11.9-4 (dated 7/98) emission factors; and
- iv. a maximum potential uncontrolled emission rate of 8.2 tons per year of particulate emissions as PM10 for bulldozing operations, based on AP-42, table 11.9-1 (dated 7/98) emission factors.



The particulate emissions and particulate emissions as PM10 limits are the sums of the above-mentioned emissions.

Compliance shall be demonstrated through the fugitive dust monitoring and record keeping requirements in d).

[Authority for term: OAC rule 3745-77-07(C)(1)]

I. Emission Limitations

Fugitive Emissions from Landfill gas

20.0 tons per year NMOC

3,446 tons per year methane

7.8 tons per year VOC

0.6 ton per year Cl₂

Applicable Compliance Method

The annual emission limitations represent the maximum potential to emit based on AP-42 emission factors for landfill gas generation Section 22.4 (dated 11/98). Maximum potential emissions will occur in the year 2021 and are based on the following:

- i. maximum daily landfill waste acceptance of 1,500 tons/day
- ii. maximum landfill capacity of 10,073,000 tons compacted waste (9.157x10⁶ Mg)
- iii. NMOC concentration data obtained from AP-42 Section 2.4 (dated 11/98) value of 595 ppm
- iv. an assumed landfill gas collection system efficiency of 75% based on AP-42, section 2.4 (dated 11-/98) factors.

Since the annual limitations represent the emissions units' maximum potential to emit, no recordkeeping, deviation reporting or compliance method calculations are required to demonstrate compliance with the above limitations.

[Authority for term: OAC rule 3745-77-07(C)(1)]

- (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.

[Authority for term: 40 CFR 60.753(c)]

- (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:

$$M_{\text{NMOC}} = 0.00189 (Q_{\text{LFG}}) C_{\text{NMOC}}$$

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

- 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 (APB42). 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.

[Authority for term: 40 CFR 60.754(b)]



- (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.

[Authority for term: 40 CFR 60.755(d)]

- (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:

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

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:

$$Q_m = \sum_{i=1}^n k L_o M_i e^{-kti} \text{ for } i = 1 \text{ through } i = n$$



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.

[Authority for term: 40 CFR 60.755(a)(1) and (2)]

(6) The net heating value of the landfill gas being combusted at the flare shall be calculated as follows:

$$HT = k \sum C_i H_i \text{ for } i = 1 \text{ through } i = n$$

where:

HT = net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature of 20 degrees Celsius is used for determining the volume corresponding to one mole;

k = constant, 1.740×10^7 (l/ppm) (gmole/scm) (MJ/kcal), where the standard temperature for gmole/scm is 20 degrees Celsius;

C_i = concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946 90; and



H_i = net heat of combustion of sample component i , kcal/g mole at 25 degrees Celsius and 760 mm Hg. The heats of combustion may be determined using ASTM D4809 95 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

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

[Authority for term: 40 CFR 60.18 and OAC rule 3745-21-10(P)(2)]

- (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.

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

[Authority for term: 40 CFR 60.18 and OAC rule 3745-21-10]

g) Miscellaneous Requirements

- (1) None.