



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

3/26/2013

Mr. Dennis Plaster
LES Renewable NG LLC
2999 Judge Road
Oakfield, NY 14125

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0125094016
Permit Number: P0112927
Permit Type: Initial Installation
County: Franklin

Certified Mail

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
Yes	SYNTHETIC MINOR TO AVOID TITLE V
Yes	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

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

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

How to appeal this permit

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

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

How to save money, reduce pollution and reduce energy consumption

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

How to give us feedback on your permitting experience

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

How to get an electronic copy of your permit

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

If you have any questions, please contact Ohio EPA DAPC, Central District Office at (614)728-3778 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: Ohio EPA-CDO



Response to Comments

Facility ID:	0125094016
Facility Name:	LES Renewable NG LLC
Facility Description:	LFG to Pipeline Quality Natural Gas
Facility Address:	4065 London-Groveport Rd Grove City, OH 43213 Franklin County
Permit:	P0112927, Permit-To-Install and Operate - Initial Installation
A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the The Columbus Dispatch on 02/23/2013. The comment period ended on 03/25/2013.	
Hearing date (if held)	
Hearing Public Notice Date (if different from draft public notice)	

The following comments were received during the comment period specified. Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. PDF copies of the original comments in the format submitted are available upon request.

1. **Topic: No comments received**

- a. Comment: None
- b. Response: None



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
LES Renewable NG LLC**

Facility ID:	0125094016
Permit Number:	P0112927
Permit Type:	Initial Installation
Issued:	3/26/2013
Effective:	3/26/2013
Expiration:	3/26/2018



Division of Air Pollution Control
Permit-to-Install and Operate
for
LES Renewable NG LLC

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Final Permit-to-Install and Operate
LES Renewable NG LLC
Permit Number: P0112927
Facility ID: 0125094016
Effective Date: 3/26/2013

Authorization

Facility ID: 0125094016
Application Number(s): A0046590
Permit Number: P0112927
Permit Description: Landfill gas to pipeline grade natural gas conversion plant
Permit Type: Initial Installation
Permit Fee: \$200.00
Issue Date: 3/26/2013
Effective Date: 3/26/2013
Expiration Date: 3/26/2018
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

LES Renewable NG LLC
4065 London-Groveport Rd
Grove City, OH 43213

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

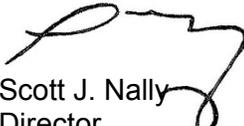
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Central District Office
50 West Town Street, 6th Floor
P.O. Box 1049
Columbus, OH 43216-1049
(614)728-3778

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (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 described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Scott J. Nally
Director



Final Permit-to-Install and Operate
LES Renewable NG LLC
Permit Number: P0112927
Facility ID: 0125094016
Effective Date: 3/26/2013

Authorization (continued)

Permit Number: P0112927
Permit Description: Landfill gas to pipeline grade natural gas conversion plant

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

Emissions Unit ID:	P001
Company Equipment ID:	P001-Landfill gas refining facility
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
LES Renewable NG LLC
Permit Number: P0112927
Facility ID: 0125094016
Effective Date: 3/26/2013

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Ohio EPA DAPC, Central District Office in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means 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.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

¹ Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



Final Permit-to-Install and Operate
LES Renewable NG LLC
Permit Number: P0112927
Facility ID: 0125094016
Effective Date: 3/26/2013

B. Facility-Wide Terms and Conditions



Final Permit-to-Install and Operate

LES Renewable NG LLC

Permit Number: P0112927

Facility ID: 0125094016

Effective Date: 3/26/2013

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.



Final Permit-to-Install and Operate
LES Renewable NG LLC
Permit Number: P0112927
Facility ID: 0125094016
Effective Date: 3/26/2013

C. Emissions Unit Terms and Conditions



1. P001-Landfill gas refining facility

Operations, Property and/or Equipment Description:

Landfill gas to pipeline grade natural gas conversion plant

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. b)(1)h, d)(8) through d)(11), e)(5).

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(D)	28.4 tons sulfur dioxide (SO ₂)/12-month rolling period. CO emissions from all emissions units located at this facility shall not exceed 50 tons per rolling 12-month period. <u>Landfill gas (LFG) treatment system</u> See b)(2)c. - g.; c)(1)-(3); d)(1)-(2); and e)(1) The thermal oxidizer (TOX) and open flare (flare) are located downstream of the LFG treatment system, the control devices are used as part of the treated LFG refining process to combust process waste gas, treated LFG or off-spec product gas. The control devices are not subject to the requirements of 40 CFR



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Part 60, Subpart WWW or 40 CFR Part 63, Subpart AAAA.</p> <p><u>TOX Emissions:</u> Carbon Monoxide (CO) emissions shall not exceed 7.1 lbs/hour</p> <p>Nitrogen Oxide (NOx) emissions shall not exceed 3.4 lbs/hour</p> <p>Particulate matter less than or equal to 10 microns (PM₁₀) emissions shall not exceed 17 pounds/10⁶dscf methane</p> <p>Nonmethane Organic Compounds (NMOC) shall be reduced by 98% by wt. or reduced to at 20 parts per million by volume, dry basis as hexane at 3 percent oxygen or less at the control device outlet.</p> <p><u>Flare Emissions:</u> 0.37 pounds CO/mmBtu</p> <p>0.068 pound NOx/mmBtu</p> <p>17 pounds PM₁₀/10⁶dscf methane</p> <p>98% NMOC/VOC destruction efficiency</p>
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	<p>Compliance with this also includes compliance with OAC rule 3745-31-05(D)</p> <p>Visible emissions from the TOX stack shall not exceed 10% opacity as a 6-minute average.</p> <p>There shall be no visible emissions from the open flare except for periods not to exceed a total of 5 minutes, during any 2 consecutive hours.</p> <p>See b)(2)a.</p> <p>Compliance with this rule also includes compliance with the requirements of OAC</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rule 3745-31-05(D).
c.	OAC rule 3745-31-05(A)(3), as effective 12/01/06	See b)(2)b.
d.	OAC rule 3745-17-07(B)(1)	This emissions unit is exempt from the visible particulate emission limitations specified in OAC rule 3745-17-07(B) pursuant to OAC rule 3745-17-07(B)(11)(e).
e.	OAC rule 3745-17-08(B)	The facility is not located within an "Appendix A" area as identified in OAC rule 3745-17-08. Therefore, pursuant to OAC rule 3745-17-08(A), this emissions unit is exempt from the requirements of OAC rule 3745-17-08(B)(1).
f.	40 CFR Part 60, Subpart WWW (40CFR Part 60.750-759) [In accordance with 60.750(a), this emission unit is treating landfill gas produced by a municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991.]	<p>Route collected gas to treatment system that processes gas for subsequent sale or use. [40 CFR 60.752(b)(iii)(C)]</p> <p>The treatment system is subject to Semi-annual NSPS reporting in accordance with 40 CFR 60.757(f)</p> <p>The monitoring, recordkeeping and reporting requirements of this rule are less stringent than OAC rule 3745-31-05(D)</p> <p>See b)(2)g.; c)(2); d)(2); e)(2); and f)(2)</p>
g.	40 CFR Part 63, Subpart AAAA (40 CFR Part 63.1930-1990) [In accordance with 63.1940(a) this became an affected source when it met the criteria in 40 CFR 63.1935(a) or (b).]	The treatment system is subject to the requirements to have a Startup, Shutdown and Malfunction (SSM) Plan and periodic (semi-annual) reporting in accordance with 40 CFR 63.10(d) [40 CFR 63.1930]
h.	ORC 3704.03(F) and OAC rule 3745-114-01	See d)(8) through d)(11) and e)(5).
i.	ORC 3704.03(T)	Compliance with this rule also includes compliance with the requirements of OAC rule 3745-31-05(D).

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to Ohio Revised Code (ORC) changes effective August



3, 2006 (Senate Bill 265 Changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, the requirements of 3745-31-05(A)(3) as effective December 1, 2006 will no longer apply.

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3)(a) do not apply to the PE and methane emitted from this emissions unit. BAT (under Senate Bill 265 changes) is only applicable to emissions of an air contaminant or precursor of an air contaminant for which a national ambient air quality standard (NAAQS) has been adopted under the Clean Air Act. PE (also referred to as total suspended particulate or particulate matter), and methane are air contaminants that do not involve an established NAAQS.

- c. The "LFG treatment" is defined by USEPA as Compression, de-watering, and filtering the LFG down to at least 10 microns is considered treatment for the purposes of 60.752 (b) (2) (iii) (C) [Federal Register 71 FR 53272 for Proposed Rule Amendments dated September 8, 2006]. The permittee has committed to installing and maintaining equipment which filters the gas to at least 3 microns, compresses it in a positive displacement blower, cools the gas after compression in an air-to-gas aftercooler and dewateres in the two coalescing filter towers. The "LFG treatment system" meets the requirements set by USEPA.
- d. The permittee has committed to monitoring, recordkeeping and reporting demonstrating "LFG treatment" is maintained. The LFG treatment system monitoring, record keeping and reporting specified in sections c.,d., and e. satisfy BAT.
- e. The permittee shall comply with the applicable emission standards and additional requirements under 40 CFR Part 60, Subpart WWW, including the following sections:

Controlled Landfill: (greater than 50 Mg uncontrolled NMOC)	
a) 60.752(b)(2)(iii)(C)	b) Route collected landfill gas to treatment system that processes gas for subsequent sale or use.

[40 CFR Part 60, Subpart WWW]



- f. The LFG treatment system is subject to 40 CFR Part 63, Subpart AAAA, pursuant to 40 CFR 63.1935.

[40 CFR Part 63, Subpart AAAA]

- g. Whenever the emission unit is in operation, all treated landfill gas that is not directed to the gas refining processes, waste gas from the gas refining processes, and off-specification product gas that cannot be sold or transferred to the pipeline, shall be controlled in the TOX or flare that satisfies the operational, monitoring, and recordkeeping requirements of this permit.

- h. Based on the maximum refining plant throughput of 6,500 scfm, the hourly and annual emissions limitations for all pollutants were established to reflect the potential to emit, as defined in OAC rule 3745-31-01, for the emissions unit, as well as for the control device.

c) Operational Restrictions

- (1) The pressure drop across each LFG treatment coalescing filter vessel shall be no greater than 2 pounds per square inch.

[OAC rule 3745-31-05(D)]

- (2) The LFG treatment blower shall be operated at a discharge pressure no less than 5 pounds per square inch [gauge].

[OAC rule 3745-31-05(D)]

- (3) The gas temperature at the outlet of the LFG treatment aftercooler shall be no greater than 130 degrees Fahrenheit.

[OAC rule 3745-31-05(D)]

- (4) The open flare shall be designed and operated in accordance with the following conditions (a. through d.).

- a. 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.

[OAC rule 3745-31-05(D)]

- b. A flame shall be maintained at all times when gas is vented to the flare. The presence of the flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame.

[OAC rule 3745-31-05(D)]

- c. The (non-assisted) flare shall have a net heating value (H_T) of 200 Btu/scf (7.45 MJ/scm) or greater, for the gas being combusted. H_T shall be calculated as required in the Testing Section of this permit.



[OAC rule 3745-31-05(D)]

- d. The (non-assisted) flare 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. A non-assisted flare, 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. Non-assisted flares can be designed for and operated with an exit velocity of less than the velocity calculated below for V_{max} , and less than 122 m/sec (400 ft/sec):

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

where:

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

28.8 = constant;

31.7 = constant; and

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

[OAC rule 3745-31-05(D)]

- (5) The open flare shall be limited to an annual heat input of less than or equal to 100,500 million Btu for the control of all gas streams (treated landfill gas, product gas, off-specification product gas, and waste gas).

[OAC rule 3745-31-05(D)]

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform the following weekly activities and maintain records of the results of the activities for the LFG treatment system:
 - a. Monitoring of the pressure drop across each LFG treatment coalescing filter vessel;
 - b. Monitoring of the LFG treatment blower discharge pressure;
 - c. Monitoring of the gas temperature at the outlet of the LFG treatment aftercooler;

[OAC rule 3745-31-05(D)]



- (2) The permittee shall maintain monthly records of the following:
- a. Amount of treated gas, waste gas and off spec./product gas, in scf, directed to each of the individual control device(s),
 - b. Maximum heat content of treated gas, waste gas and off spec./product gas directed the control device(s). Initial calculations were based on 556 Btu/scf for the treated landfill gas, 445 Btu/scf for the waste gas/product gas blend stream and 909 Btu/scf for the off-specification product gas.
 - c. The number of hours that the individual control device(s) and the treatment system that processes the gas for subsequent sale or use were operated; and
 - d. The rolling, 12-month summation of the combined emissions of CO from all control device(s), and the monthly PTE from any other stationary emission unit (except trivial sources).

[OAC rule 3745-31-05(D)]

- (3) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable average combustion temperature within the TOX, for any 3-hour block of time when the emissions unit(s) controlled by the TOX is/are in operation, shall not be more than 50 degrees Fahrenheit below the manufacturer's recommended operating temperature OR average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance. The TOX shall be operated and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manual.

[OAC rule 3745-31-05(D)]

- (4) Following compliance testing, the permittee shall collect and record the following information each day the thermal oxidizer is required to demonstrate compliance with the VOC limitation contained in this permit:
- a. The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder that measures and records the combustion temperature within the TOX when the emissions unit(s) is/are in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within ± 1 percent of the temperature being measured or ± 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The acceptable temperature setting shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate temperature range is established to demonstrate compliance. Following compliance testing, the permittee shall collect and record the following information each day the emissions unit(s) is/are in operation:



- i. All 3-hour blocks of time, when the emissions unit(s) controlled by the TOX was/were in operation, during which the average combustion temperature within the TOX was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and
- ii. A log or record of the operating time for the TOX, monitoring equipment, and the associated emissions unit(s).

These records shall be maintained at the facility for a period of three years.

[OAC rule 3745-31-05(D)]

- (5) Whenever the monitored average combustion temperature within the TOX deviates from the range or limit established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:
 - a. The date and time the deviation began;
 - b. The magnitude of the deviation at that time;
 - c. The date the investigation was conducted;
 - d. The name(s) of the personnel who conducted the investigation; and
 - e. The findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range/limit specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- a. Description of the corrective action;
- b. The date corrective action was completed;
- c. The date and time the deviation ended;
- d. The total period of time (in minutes) during which there was a deviation;
- e. The temperature readings immediately after the corrective action was implemented; and
- f. The name(s) of the personnel who performed the work.



Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The temperature range/limit is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted temperature range/limit based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rate(s) for the controlled pollutant(s). In addition, approved revisions to the temperature range/limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (6) 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. The net heating value of the gas, the actual exit velocity for the flare, and the maximum allowed velocity shall be determined using the procedures presented in the Testing Section of this permit.

[OAC rule 3745-31-05(D)]

- (7) The permittee shall comply with the applicable monitoring and recordkeeping requirements required under 40 CFR Part 63, Subpart AAAA for the LFG treatment system, including the following sections

40 CFR 63.1980(a)	Keep records and reports as specified in 40 CFR Part 60, Subpart WWW
40 CFR 63.1980(b)	Keep records and reports as specified in 40 CFR Part 60, and Table of this subpart

[40 CFR Part 63, Subpart AAAA]

- (8) The permit-to-install application for this emissions unit, P001, was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee. The Toxic Air Contaminant Statute, ORC 3704.03(F), was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled Review of New Sources of Air Toxic Emissions, Option A, as follows:
 - a. The exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour work week, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and other materials applied) has been documented from



one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

- i. Threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices; or
 - ii. STEL (short term exposure limit) or the ceiling value from ACGIH Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
 - c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., X hours per day and Y days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the MAGLC:

$$\text{TLV}/10 \times 8/X \times 5/Y = 4 \text{ TLV}/XY = \text{MAGLC}$$

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case toxic contaminant(s):

Toxic Contaminant: hydrogen chloride
TLV (mg/m³): 2.0
Maximum Hourly Emission Rate (lb/hr): 6.49
Predicted 1-Hour Maximum Ground-Level Concentration (µg/m³): 20.4
MAGLC (µg/m³): 72

The permittee, has demonstrated that emissions of hydrogen chloride, from emissions unit(s) P001, is calculated to be less than eighty per cent of the MAGLC; any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the Toxic Air Contaminant Statute, ORC 3704.03(F).

[ORC 3704.03(F)(3)(c) and F(4); OAC rule 3745-114-01; Option A, Engineering Guide #70]

- (9) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:



- a. Changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower TLV than the lowest TLV previously modeled;
- b. Changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
- c. Physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the Toxic Air Contaminant Statute will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit-to-install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[ORC 3704.03(F)(3)(c) and F(4); OAC rule 3745-114-01; Option A, Engineering Guide #70]

- (10) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F):
- a. A description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. The MAGLC for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the Toxic Air Contaminant Statute, ORC 3704.03(F);
 - c. A copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
 - d. The documentation of the initial evaluation of compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.



[ORC 3704.03(F)(3)(c) and F(4); OAC rule 3745-114-01; Option A, Engineering Guide #70]

- (11) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[ORC 3704.03(F)(3)(c) and F(4); OAC rule 3745-114-01; Option A, Engineering Guide #70]

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify all periods when the LFG treatment system did not comply with the allowable range specified operational restrictions c)(1)-(3).
- (2) The permittee shall identify in the quarterly deviation (excursion) reports the following information concerning the operations of the TOX during the reporting period for this emissions unit:
 - a. Each period of time (start time and date, and end time and date) when the average combustion temperature within the thermal oxidizer was outside of the range specified by the manufacturer and/or outside of the acceptable range following any required compliance demonstration;
 - b. Any period of time (start time and date, and end time and date) when the emissions unit was in operation and the process emissions were not vented to the thermal oxidizer or open flare;
 - c. Each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;
 - d. Each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the emissions unit(s) into compliance and/or the temperature within the thermal oxidizer into compliance with the acceptable range, was determined to be necessary and was not taken; and
 - e. Each incident of deviation described in "a" or "b" where proper records were not maintained for the investigation and/or the corrective action(s).
- (3) The permittee shall identify in the quarterly deviation (excursion) reports all periods of time during which the flame was not functioning properly when gases were vented to the flare or the flare was not maintained as required in this permit. The reports shall include the date, time, and duration of each such period.
- (4) The permittee shall submit Semi-Annual reports and such other notifications and reports to Ohio EPA/CDO as are required pursuant to 40 CFR Part 63, Subpart AAAA.



40 CFR 63.1980(a)	Submit the annual report required in 40 CFR 60.757(f) every 6 months as follows: <table border="1"> <thead> <tr> <th data-bbox="740 386 1105 415"><u>Reporting Period</u></th> <th data-bbox="1112 386 1481 415"><u>Report Submittal Date</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="740 417 1105 447">January 1 through June 30</td> <td data-bbox="1112 417 1481 447">July 31</td> </tr> <tr> <td data-bbox="740 449 1105 478">July 1 through December 31</td> <td data-bbox="1112 449 1481 478">January 31</td> </tr> </tbody> </table>	<u>Reporting Period</u>	<u>Report Submittal Date</u>	January 1 through June 30	July 31	July 1 through December 31	January 31
<u>Reporting Period</u>	<u>Report Submittal Date</u>						
January 1 through June 30	July 31						
July 1 through December 31	January 31						

- (5) The permittee shall submit annual reports by January 31 that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:
- a. The original model input;
 - b. The updated model input;
 - c. The reason for the change(s) to the input parameter(s); and
 - d. A summary of the results of the updated modeling, including the input changes; and
 - e. A statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.

If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect.

[ORC 3704.03(F)(3)(c) and F(4); OAC rule 3745-114-01; and Option A, Engineering Guide #70]

- (6) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA eBusiness Center: Air Services by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emission Limitation: 28.4 tons SO₂ per 12-month rolling period for the landfill gas treatment and refining process (plant-wide limitation).

Applicable Compliance Method: The combustion emission limitation was established based on site specific sampling results/engineering estimate.



The following is being presented for informational purposes:

The annual SO₂ emissions limitation for the landfill gas treatment and refining process (waste gas or treated LFG controlled in the TOX and open flare) is based on the combustion of sulfur compounds in the incoming LFG and can be calculated as follows:

- i. A maximum of 100 ppmv of total reduced sulfur (total sulfur as H₂S) in the LFG processed by the facility (should revised concentration data become available, the most current concentrations shall be used facility).
- ii. Complete (100%) conversion of sulfur to form SO₂.
- iii. Compliance with the annual emission limitation shall be determined each month using the following calculation and the calculated SO₂ emission rate for the previous 11 months:

ft ³ gas ⁽¹⁾	ppmv S ⁽²⁾	MW ⁽³⁾	1 ton
month	10 ⁶ scf	Vm ⁽⁴⁾	2000 lbs

Where:

- (1) Inlet LFG flow to the facility
- (2) Total sulfur concentration, as measured or specified in i above.
- (3) Molecular weight of SO₂ (64.06 lb/lb-mol).
- (4) Molar volume of ideal gas at STP (385 scf/lb-mol).

Therefore, the emission limitation represents the potential-to-emit, and ongoing compliance is assumed.

- b. **Emission Limitation:** The TOX shall reduce NMOC in the waste gas stream by a minimum of 98% by weight or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen (NMOC reduction is being used as a surrogate for VOC reduction).

The potential, annual VOC emissions from the TOX can be estimated using the following calculations:

dscf NMOC ⁽¹⁾	(20.9%-O _{2 act}) ⁽²⁾	Q _{dstd} ⁽³⁾	MW ⁽⁴⁾	60 min	% VOC ⁽⁶⁾	=lb/hr VOC
10 ⁶ dscf gas	(20.9%-3%O ₂)	min	Vm ⁽⁵⁾	hr		



lbs VOC	8760 hours	1 ton	= tons/yr
hour	year	2000 lbs	

Where:

- (1) Dry concentration NMOC, as hexane and 3% oxygen (20 ppmvd)
- (2) Oxygen content in TOX exhaust gas (6.8% used initially)
- (3) TOX exhaust gas rate, dry basis at STP (8,817 dscfm used initially)
- (4) Molecular weight NMOC (86.16 lb/lb-mol)
- (5) Molar Volume of ideal gas at STP (385 scf/lb-mol)
- (6) AP-42 Chapter 2.4 default factor VOC in NMOC (39%)

Applicable Compliance Method: Operate the TOX combustion chamber at the manufacturer's specified temperature of 1,650 degrees F or average combustion chamber temperature as determined during compliance testing.

If required, NMOC reduction testing (reduction efficiency %wt or NMOC outlet concentration) will be performed using the methods and procedures in 40 CFR Part 60, Appendix A, Methods 1-4, 18 and 25A.

- c. Emission Limitation: 17.0 pounds PM₁₀ per 10⁶dscf methane combusted in the TOX

Applicable Compliance Method: The combustion PM₁₀ emission limitation was established based on the emission factors from AP-42 Chapter 2.4, Municipal Solid Waste Landfills (11/98).

The following is being presented for informational purposes:

The potential, annual PM₁₀ emissions from the TOX can be estimated using the following calculation for each gas stream to the TOX:

lbs PM ₁₀ ⁽¹⁾	dscf ⁽²⁾	0.xx scf CH ₄ ⁽³⁾	60 min	8760 hrs	1 ton
10 ⁶ scf CH ₄	minute	scf gas	hour	year	2000 lbs

Where:

- (1) AP-42 Chapter 2.4 default factor (17 lb/10⁶scf methane)
- (2) Maximum gas flow rate (3,055 scfm was used for the waste gas stream and 34 scfm was used for the TOX fuel).
- (3) Volume fraction of methane in gas (13% was used for the waste gas stream and 98.9% was used for the TOX fuel).

- d. Emission Limitation: CO and NO_x combustion emissions from the TOX shall not exceed the following:



- i. 7.1 lbs/hr for CO emissions
- ii. 3.4 lbs/hr for NOx emissions

Applicable Compliance Method: The TOX CO and NO_x combustion emission limitations were established based on manufacturer's information.

The following is being presented for informational purposes:

The federally enforceable, potential annual NO_x and CO emissions from the TOX can be estimated using the following calculation:

lbs pollutant ⁽¹⁾	8760 hours	1 ton
hour	year	2000 lbs

Where:

⁽¹⁾ Pounds pollutant per hour based on manufacturer's information.

If required, the permittee shall demonstrate compliance with the CO and NO_x emission limitations in accordance with 40 CFR Part 60, Appendix A, Methods 1-4, 7E and 10.

- e. Emission Limitation: Visible emissions from the TOX stack shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method: If required, visible emissions from the TOX will be evaluated using 40 CFR Part 60, Appendix A, Method 9.

- f. Emission Limitation: The open flare shall reduce NMOC in the treated landfill gas or waste gas stream by a minimum of 98% by weight.

Applicable Compliance Method: The flare shall be designed, manufactured and operated in accordance with the general control device requirements for flares in 40 CFR 60.18.

The net heating value of the gas being combusted in the flare shall be 200 Btu/scf (7.45 MJ/scm) or greater and shall be calculated as follows:

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



Where:

H_T = 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} (1/ppm) (g mole/scm) (MJ/kcal), where the standard temperature for (g mole/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;

H_i = net heat of combustion of sample component "i", kcal/g mole at 25 degrees Celsius and 760 mm Hg. The heat of combustion may be determined using ASTM D4809-95 if published values are not available or cannot be calculated;

i = subscript denoting a specific component in the sample; and

n = total number of components within the sample.

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

[40 CFR 60.18], [40 CFR 63.11], and/or [OAC rule 3745-21-10(P)(2)]

The actual exit velocity of the flare shall be determined for comparison to the exit velocity requirements in 40 CFR 60.18 (c)(4) and c)(4)d. of this permit 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 (found in 40 CFR 60, Appendix A), 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.

[40 CFR 60.18], [40 CFR 63.11], and/or [OAC rule 3745-21-10(P)(3)]

g. Emission Limitation:

17.0 pounds PM_{10} per 10^6 dscf methane combusted in the flare.

Applicable Compliance Method: The combustion PM_{10} emission limitation was established based on the emission factors from AP-42 Chapter 2.4, Municipal Solid Waste Landfills (11/98).



The following is being presented for informational purposes:

The potential, annual PM₁₀ emissions from the flare can be estimated using the following calculation for each gas stream to the flare:

lbs PM ₁₀ ⁽¹⁾	dscf ⁽²⁾	0.xx scf CH ₄ ⁽³⁾	60 min	8760 hrs	1 ton
10 ⁶ scf CH ₄	minute	scf gas	hour	year	2000 lbs

Where:

- (1) AP-42 Chapter 2.4 default factor (17 lb/10⁶scf methane)
- (2) Maximum gas flow rate (2,000 scfm was used for the treated landfill gas, 2,195 scfm was used for the waste gas/product gas blend stream and 1,200 scfm was used for off-specification product gas).
- (3) Volume fraction of methane in gas being flared (55% was used the treated landfill gas, 13.5% was used for the waste gas stream and 90% was used for the off-specification product gas).

- h. Emission Limitation: CO and NO_x emissions from the flare shall not exceed the following:
 - i. 0.068 pounds NO_x per mmBtu of heat input
 - ii. 0.37 pounds CO per mmBtu of heat input

Applicable Compliance Method: The flare combustion emission limitations were established based on the emission factors from AP-42 Chapter 13.5, Industrial Flares (9/91).

The following is being presented for informational purposes:

The potential annual NO_x and CO emissions from the flare can be estimated using the following calculation for each gas stream directed to the flare:

lbs pollutant ⁽¹⁾	scf ⁽²⁾	Btu ⁽³⁾	60 mins	8760 hours	1 ton
MMBtu	minute	scf	hour	year	2000 lbs

Where:

- (1) AP-42 Chapter 13.5, Industrial Flares (9/91) or manufacturer's emission guarantee for flare.
- (2) Maximum gas flow rate (2,000 scfm was used for the treated landfill gas, 1,410 scfm was used for the waste gas stream and 1,200 scfm was used for off-specification product gas).



- (3) Assumed maximum heat content of gas stream (556 Btu/scf was used the treated landfill gas, 445 Btu/scf was used for the waste gas/product gas blend stream and 909 Btu/scf was used for the off-specification product gas).
- i. 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: If required, visible emissions from the flare, will be evaluated using 40 CFR Part 60, Appendix A, Method 22.
- (2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- a. Within 180 days of startup of the emission unit, emission testing shall be performed to demonstrate compliance with the TOX NMOC reduction efficiency requirements and allowable CO and NO_x mass emission rates for the TOX.
- b. The following test methods shall be used for the TOX emission testing:
- i. Methods 1-4 of 40 CFR Part 60 and;
- ii. Methods 7E, 10, 18, and 25A as applicable of 40 CFR Part 60.
- (3) The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA/CDO. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- (4) Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA/CDO. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in Ohio EPA/CDO's refusal to accept the results of the emission test(s).
- (5) Personnel from the Ohio EPA/CDO shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- (6) A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted



Final Permit-to-Install and Operate

LES Renewable NG LLC

Permit Number: P0112927

Facility ID: 0125094016

Effective Date: 3/26/2013

to the Ohio EPA/CDO within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA/CDO.

g) Miscellaneous Requirements

(1) None.