

**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT  
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS  
FOR LORAIN COUNTY LANDFILL LFG POWER STATION  
OBERLIN, OHIO  
PTI NUMBER 02-17062**

**February 06, 2003**

Ohio Environmental Protection Agency  
Division of Air Pollution Control  
Lazarus Government Center  
122 South Front Street  
Columbus, Ohio 43215

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and nonattainment area New Source Review requirements. The federal PSD rules govern emission increases in attainment areas for major sources, which are sources with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In nonattainment areas, the definition of major source is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous increase in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within a five-year period are considered to be contemporaneous. In addition, Ohio now has incorporated the PSD and NSR requirements by rule under OAC 3745-31.

Both PSD and nonattainment rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major source. The principal requirements of the PSD regulations are:

- 1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major source.
- 2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the incremental values set pursuant to the Clean Air Act.

For nonattainment areas, the requirements are:

- 1) Lowest Achievable Emissions Rate (LAER) - New major sources must install controls that represent the lowest emission levels (highest control efficiency) that has been achieved in practice.
- 2) The emissions from the new major source must be offset by a reduction of existing emissions of the same pollutant by at least the same amount, and a demonstration must be made that the resulting air quality shows a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 CFR Part 51.

- 3) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing State Implementation Plan (SIP) or are on an approved schedule resulting in full compliance with the SIP.

For rural ozone nonattainment areas, the requirements are:

- 1) LAER - New major sources must install controls that represent the lowest emissions levels (highest control efficiency) that has been achieved in practice.
- 2) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing SIP or are on an approved schedule resulting in full compliance with the SIP.

Finally, New Source Performance Standards (NSPS), SIP emission standards and public participation requirements must be followed in all cases.

### Site Description

The facility is in Penfield Township, near Oberlin, Ohio, which is located in Lorain County. This area is classified as attainment for all of the criteria pollutants, particulate matter less than 10 microns, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds (ozone) and lead.

### Facility Description and Project Introduction

Bio Energy (Ohio II), LLC, currently has eight power generating units utilizing landfill gas combustion from Lorain County Landfills I & II to generate power. These units were permitted in a permit to install (PTI) dated December 19, 2000 with a short limit for carbon monoxide (CO) of 6.16 lbs/hr. During a subsequent compliance test the CO emissions tested to be 8.28 lbs/hr. With the new proposed allowable of 9.76 lbs/hr the CO emissions are estimated to exceed the PSD major threshold with 342.0 tons/year of emissions (based on 8760 hours of operation per year). Upon receiving the compliance test data the Ohio EPA issued a notice of violation (NOV) to Bio Energy. In response to the NOV, Bio Energy submitted an application for a PSD permit for the electric generating units' installation. No netting or federally enforceable restrictions will be issued with this permitting action.

### New Source Review (NSR)/PSD Applicability

This process will generate criteria pollutant emissions of particulate, NO<sub>x</sub>, CO, SO<sub>2</sub> and VOC. For PSD purposes, the Lorain County Landfill LFG Power Station is now considered a major facility. A PSD analysis is required for any increase in emissions of a pollutant exceeding the PSD threshold emissions level, or the significance levels. Of the pollutants emitted carbon monoxide and nitrogen oxides will be the only pollutants that will result in a net increase above PSD significant levels. Nonattainment New Source Review is not applicable, due to attainment status.

Whereas combustion engine power stations are not directly subject to MACT or NSPS, the emissions of the landfill gas are subject to 40 CFR Part 60 Subpart WWW. Since the emissions are subject, Subpart WWW was determined to be applicable for this permit.

Short term emissions from the Lorain County Landfill LFG Power Station are based upon worst case operating conditions. The annual emissions are based on pounds per hour emissions at average operating conditions at 8760 hours.

TABLE 1

PRELIMINARY POLLUTANT EMISSION RATES  
 MODIFICATION TO INCREASE EMISSION RATES  
**Bio Energy, LLC**

<u>AIR POLLUTANT</u>	<u>TOTAL TPY INCREASE</u>	<u>TOTAL TPY ALLOWABLE</u>	<u>PSD THRESHOLD</u>
NO <sub>x</sub>	204.8	204.8	40
CO	342.4	342.4	100
PM/PM <sub>10</sub>	12.8	12.8	25/15
SO <sub>2</sub>	8.0	8.0	40
VOC	24.0	24.0	40

Control Technology Review

As part of the application for any source regulated under the PSD requirements, an analysis must be conducted that demonstrates that Best Available Control Technology (BACT) will be employed by the source. The facility is subject to PSD regulations which mandate a case-by-case BACT analysis be performed for PSD triggering pollutants. The application used a "top-down" approach to determine the latest demonstrated control techniques and select an appropriate level of control.

The basic steps to be followed are:

Identify all available potential control options;

Eliminate technically infeasible options;

Rank remaining technologies by control effectiveness;

Evaluate the feasible controls by performance and cost analysis; and

Select the most effective control based on energy, environmental and economic impacts (generally, the feasible technology that is also considered to be cost effective).

**CO**

Carbon monoxide was emitted at sufficient quantities to establish the source as PSD major. CO emissions result from incomplete LFG combustion. Several technologies were evaluated for control of CO emissions, but the controls can be summarized into two categories. The following table summarizes the results of the evaluation for BACT of the engines. The BACT/LAER Clearinghouse was consulted and the following controls were chosen to be the controls used on power station combustion engines.

<b>CO Control</b>	<b>Description</b>
CO combustion controls	Since CO is a product of combustion, combustion control techniques are designed to maximize the efficiency of the combustion process, thereby oxidizing as much of the carbon in the fuel as possible to carbon dioxide rather than carbon monoxide. The only CO control technology considered technically feasible for the eight IC engines is proper combustion control. The engine manufacturer has attempted to minimize CO emissions formation while at the same time limiting the formation of NOx emissions through the use of lean burn technology. CO emissions can be maintained at these relatively low levels by the proper operation and maintenance of the IC (power station) engines with no additional costs or environmental impacts. Therefore, BACT is determined to be operation and maintenance according to the manufacturer's recommendations.
CO flue gas treatment controls	CO flue gas treatment technologies complete the oxidation of CO to CO2 either in the presence or absence of a catalyst with a thermal or catalytic oxidation system. The two systems considered in this analysis were selective catalytic oxidation and non-selective catalytic reduction due to the fact the NOx analysis determined the systems to be infeasible so this analysis will concur. See the NOx analysis below.

## **NOx**

Nitrogen oxides (NOx) were emitted at sufficient quantities to exceed the significant threshold. NOx is formed in the combustion processes primarily by either: 1) oxidation in the combustion air at high temperatures (thermal NOx), or 2) reduction and subsequent oxidation of nitrogen chemically bound in fuel at slightly lower temperatures (fuel NOx). Several technologies were evaluated for control of NOx emissions, and the controls can be summarized into four categories. The following table summarizes the results of the evaluation for BACT of the engines. The BACT/LAER Clearinghouse was consulted and the following controls were chosen to be the controls used on power station combustion engines.

<b>NOx Control</b>	<b>Description</b>
NOx combustion controls	The best combustion control for NOx offered consists of lean burn technology. The pre-combustion chamber in the lean burn engine specifically targets peak flame temperature by inducing main combustion in a lean burn environment and reduces combustion time. The cost of employing this method is low due to the fact that the control is built into the engine thus no add on costs are associated. Due to the cost and environmental benefit, this control was selected as BACT.

Non-selective Catalytic Reduction	Non-selective catalytic reduction (NSCR) technology is applicable to certain internal combustion engines (rich-burn, gas fired) that are operated at all times with an air fuel ratio (AFR) at or close to stoichiometric. Under these conditions, and in the presence of a catalyst, reducing the presence of all three pollutants in the flue gas. Because of the formation of Siloxane when the LFG comes in contact with catalysts over a short period of time this method is considered infeasible. The infeasibility occurs when the Siloxane begins to clog the catalyst's bed dropping the efficiency drastically in the first few hundred hours. The catalysts will become completely deactivated a short time after the initial drop in efficiency.
Selective Catalytic Reduction	Selective catalytic reduction (SCR) is similar to NSCR; however, SCR uses ammonia as a reducing agent. Because of the formation of Siloxane when the LFG comes in contact with catalysts over a short period of time this method is considered infeasible. The infeasibility occurs when the Siloxane begins to clog the catalyst's bed dropping the efficiency drastically in the first few hundred hours. The catalysts will become completely deactivated a short time after the initial drop in efficiency.
Selective Non-catalytic Reduction	Selective Non-catalytic Reduction (SNCR) injects a reducing agent (urea or ammonia) directly into the effluent stream. Temperature of this stream is critical. The temperature usually ranges between 1400 to 1500 degrees Fahrenheit. No catalyst bed is used with this control technique. The exhaust gas of the IC engine to be used at the landfill has a temperature around 800 degrees Fahrenheit. It has been found not to be practical or cost effective to use this technology. The added combustion required to heat the exhaust gases an additional 800 degrees will also generate additional quantities of other pollutants. In addition to the cost of preheating for SNCR treatment the exhaust gases will be required to be baffled for added residence time as required for a SNCR system. Due to the impracticability of the application of SNCR this control is found to be infeasible.

Ambient Air Quality Monitoring Requirements

The proposed Bio Energy Lorain facility would be located in AQCR 174. The area is attainment for all criteria pollutants. U.S. EPA regulations require the establishment of baseline air quality in the vicinity of the proposed project. This is normally accomplished using representative air quality monitoring data. Air quality modeling can be utilized to demonstrate that the project will have less than the PSD monitoring de minimus impact. If the projected impact from the proposed project exceeds this level, ambient data must be collected or existing representative data must be identified.

Bio Energy Lorain has conducted ambient air quality modeling to determine the potential impact due to the proposed installation. The following are the projected impacts:

Pollutant	Averaging Period	Predicted Concentration	Monitoring De minimus Concentration
NOx	Annual	4.26 ug/m <sup>3</sup>	14 ug/m <sup>3</sup>
CO	8-hour	195.76 ug/m <sup>3</sup>	575 ug/m <sup>3</sup>

Predicted impacts did not exceed the monitoring threshold for CO and NOx. Therefore, Bio Energy Lorain would not be required to conduct pre-construction monitoring.

### Modeling

Air quality dispersion modeling was conducted to assess the effect of this modification on the national ambient air quality standards (NAAQS) and PSD increments. ISCST3 (version 02035) was used in the regulatory default, rural mode. Five years of meteorological data (Cleveland/Buffalo 1987-1991) were used. An analysis was included to demonstrate that the Cleveland surface data were representative of the project area for both simple and complex terrain modeling. Building downwash was incorporated into the ISCST3 estimates.

The predicted peak impact of NOx was above its corresponding PSD significant impact level. Additional modeling for compliance with both the NAAQS and PSD increments was required. The predicted peak impacts for CO were below their corresponding PSD significant impact levels. Therefore, no additional modeling for PSD increment or NAAQS was required for CO.

Pollutant	Averaging Period	Project Impact	PSD Significant Impact Level
CO	1-hour	453 ug/m <sup>3</sup>	2000 ug/m <sup>3</sup>
	8-hour	196 ug/m <sup>3</sup>	500 ug/m <sup>3</sup>
NOx	Annual	4.26 ug/m <sup>3</sup>	1.0 ug/m <sup>3</sup>

### Increment

All areas surrounding the Bio Energy Lorain facility are Class II PSD areas. It is the Ohio EPA policy that no individual project consumes more than 50% of the available PSD increment. For CO projects are constrained to no more than 25% of the NAAQS. The following is the summary of the impact of increment consuming sources (peak annual NOx and peak 1-hour and 8-hour CO):

Pollutant	Averaging Period	Project Concentration	Total PSD Concentration	PSD Class II Increments
CO	1-hour	453 ug/m <sup>3</sup>	NA	10000 ug/m <sup>3</sup> *
	8-hour	196 ug/m <sup>3</sup>	NA	2500 ug/m <sup>3</sup>
NOx	Annual	4.26 ug/m <sup>3</sup>	4.4 ug/m <sup>3</sup>	25 ug/m <sup>3</sup>

\* CO does not have PSD increments. These values represent 25% of the CO NAAQS.

## NAAQS

Existing sources at the facility, existing sources above the PSD significant rates within the Bio Energy Lorain significant impact area (SIA) and sources greater than 100 tons/year outside of the SIA are modeled to determine the combined impact of existing significant sources. A background value is added to account for minor sources not explicitly included in the modeling.

Pollutant	Averaging Period	Predicted Concentration	Concentration With Background	NAAQS
CO	1-hour	NA		
	8-hour	NA		
NOx	Annual	4.97 ug/m <sup>3</sup>	39.0 ug/m <sup>3</sup>	100 ug/m <sup>3</sup>

## Secondary Impact Analysis

Bio Energy Lorain has demonstrated that the predicted pollutant concentrations throughout the study area are below the secondary NAAQS thresholds. The secondary NAAQS are designed to limit the amount of pollutants in the ambient air to levels below those which could have an adverse impact on human welfare, soils and vegetation. The modeling analyses demonstrate that no significant impacts on human welfare, soils or vegetation will occur from the proposed modification.

Soil and Vegetation: EPA Air Quality Criteria documents were reviewed for information on pollutants and adverse effects on the type of vegetation and soils in the area. No adverse impact upon soils or vegetation is expected. The modeled concentrations are below the primary and secondary NAAQS limits.

Visibility: The Bio Energy Lorain facility is located nearly X00 miles from the closest class I area. Primary or secondary pollutants associated with this project are not anticipated to affect local or class I visibility.

## Toxics Analysis

The Ohio Air Toxics Policy requires evaluation of increases in air toxics above the one ton/year threshold. Emissions rates are modeled to determine whether they exceed the Maximum Acceptable Ground Level Concentration (MAGLC) which is defined in Option A Review of New Sources of Air Toxic Emissions. HCl and Formaldehyde were subject to toxic review. Predicted concentrations were below their respective MAGLC.

## Conclusions

Based upon the review of the permit to install application and the supporting documentation provided by the applicant (and The RETEC Group, Inc., Bio Energy's consultant), the Ohio EPA staff has determined the installation will comply with all applicable State and Federal environmental regulations and that the requirements for BACT are satisfied. Therefore, the Ohio EPA staff recommends that a permit to install be issued to the Bio Energy Lorain facility for the installation of the landfill gas power station.



State of Ohio Environmental Protection Agency

**RE: DRAFT PERMIT TO INSTALL CERTIFIED MAIL  
LORAIN COUNTY**

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:  
Lazarus Gov.  
Center

**Application No: 02-17062**

**DATE: 2/6/2003**

Lorain County Landfill LFG Power Station  
Leslie Cook  
7700 San Felipe, Suite 480  
Houston, TX 77063

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed or final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$1600** will be due. Please do not submit any payment now.

The Ohio EPA is urging 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 Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Very truly yours,

*Michael W. Ahern*

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

NEDO



STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install  
Terms and Conditions**

**Issue Date: To be entered upon final issuance  
Effective Date: To be entered upon final issuance**

**DRAFT PERMIT TO INSTALL 02-17062**

Application Number: 02-17062  
APS Premise Number: 0247100968  
Permit Fee: **To be entered upon final issuance**  
Name of Facility: Lorain County Landfill LFG Power Station  
Person to Contact: Leslie Cook  
Address: 7700 San Felipe, Suite 480  
Houston, TX 77063

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**43502 Oberlin-Elyria Rd.**  
**Oberlin, Ohio**

Description of proposed emissions unit(s):  
**LFG electric power generation station.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) 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 above described 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

Director

**Lorain County Landfill LFG Power Station**  
**PTI Application: 02-17062**  
**Issued: To be entered upon final issuance**  
**Part I - GENERAL TERMS AND CONDITIONS**

**Facility ID: 0247100968**

**A. State and Federally Enforceable Permit To Install General Terms and Conditions**

**1. Monitoring and Related Recordkeeping 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:
  - i. The date, place (as defined in the permit), and time of sampling or measurements.
  - ii. The date(s) analyses were performed.
  - iii. The company or entity that performed the analyses.
  - iv. The analytical techniques or methods used.
  - v. The results of such analyses.
  - vi. 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:
  - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
  - ii. 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 appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See B.9 below if no deviations occurred during the quarter.

**Lorain County Landfill LFG Power Station**  
**PTI Application: 02-17062**  
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- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., 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.
- iv. 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.

## **2. 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 appropriate Ohio EPA District Office or local air agency 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).

## **3. 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.

## **4. 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.

## **5. Severability Clause**

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.

## **6. 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 reissuance, or modification, or for denial of a permit renewal application.
- 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, reopened, 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, reopening 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.

## **7. 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 this Permit To Install.

## **8. Federal and State Enforceability**

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit

**Lorain County Landfill LFG Power Station**

**Facility ID: 0247100968**

**PTI Application: 02-17062**

**Issued: To be entered upon final issuance**

shall not be federally enforceable and shall be enforceable under State law only.

## **9. Compliance Requirements**

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - i. 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.
  - ii. 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.
  - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency 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:
  - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - ii. 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.

**Lorain County Landfill LFG Power Station**  
**PTI Application: 02-17062**  
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**Facility ID: 0247100968**

#### **10. Permit To Operate Application**

- a. If 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).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

#### **11. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

#### **12. 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.

**Lorain County Landfill LFG Power Station**

**Facility ID: 0247100968**

**PTI Application: 02-17062**

**Issued: To be entered upon final issuance**

**B. State Only Enforceable Permit To Install General Terms and Conditions**

**1. Compliance Requirements**

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

**2. 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 appropriate Ohio EPA District Office or local air agency.
- 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 appropriate Ohio EPA District Office or local air agency. 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., 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.)

**3. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**4. Termination of Permit To Install**

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may

**Lorain County Landfill LFG Power Station**

**Facility ID: 0247100968**

**PTI Application: 02-17062**

**Issued: To be entered upon final issuance**

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.

## **5. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. 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 the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install 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.

## **6. 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.

## **7. Applicability**

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

## **8. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the

**Lorain County Landfill LFG Power Station  
PTI Application: 02-17062**

**Facility ID: 0247100968**

**Issued: To be entered upon final issuance**

facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)**

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., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**C. Permit To Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

**SUMMARY (for informational purposes only)  
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	204.8
VOC	24.0
SO2	8.0
PE	12.8
PM10	13.04
CO	342.4
HCl	9.6

**Lorain County Landfill LFG Power Station**  
**PTI Application: 02-17062**  
**Issued: To be entered upon final issuance**

**Facility ID: 0247100968**

## Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

### A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

1. Demonstrating compliance with the testing requirements of this permit shall be based upon testing three (3) of the units. If the results of testing three units demonstrate that either any of the three units tested are not in compliance with the permit allowable emissions limitations, or that there is greater than a 10% variance of each other, Ohio EPA may require the facility shall test an additional three (3) emissions units that have not been tested to date. After issuance of a Title V permit, the facility shall test three (3) emissions units at the time of each permit renewal, rotating through the existing emissions units until all have been tested at least once, then continuing to rotate through the emissions units in the order in which they were initially
2. If for any reason, all generators at the facility are inoperable for more than 72 continuous hours, Ohio EPA Northeast District Office shall be notified by phone within the next 24 hours. Within thirty (30) days of restoring operation, the facility shall submit a report detailing the cause of the shutdown, appropriate corrective measures taken or repairs made, and precautionary measures to be taken to prevent a recurrence.

### B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

The permit-to-install for emissions units P001 through P008 was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit-to-install application. Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit-to-install application and the ISC model. The predicted 1-hour maximum ground-level concentration from the use of the ISC model was compared to the maximum acceptable ground-level concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

**Pollutant:** Hydrogen Chloride

**Ceiling Value (mg/m<sup>3</sup>):** 2.47

**Maximum Hourly Emission Rate (lbs/hr):** 2.265

**Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>):** 13.1

**MAGLC (ug/m<sup>3</sup>):** 57

**Pollutant:** Formaldehyde

**Ceiling Value (mg/m<sup>3</sup>):** 0.18

**Maximum Hourly Emission Rate (lbs/hr):** 0.270

**Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>):** 1.56

**MAGLC (ug/m<sup>3</sup>):** 4.3

Changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation,

**Lorain County Landfill LFG Power Station**

**Facility ID: 0247100968**

**PTI Application: 02-17062**

**Issued: To be entered upon final issuance**

the permittee

determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower threshold limit value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value 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 pollutant with a listed TLV that was proposed in the application and modeled; and
  - c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).
2. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit-to-install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit-to-install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20
P001 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	OAC rule 3745-31-05 (A)(3)	
		40 CFR Part 60, Subpart WWW
		OAC rule 3745-17-11 (B)(5)
		OAC rule 3745-17-07 (A)
		OAC rule 3745-18-06
		OAC rule 3745-21-08(B)
		OAC rule 3745-21-07(B)

Lorain  
PTI A

Emissions Unit ID: P001

**Issued: To be entered upon final issuance**

OAC rule 3745-23-06(B)

Applicable Emissions  
Limitations/Control Measures

Visible emissions shall not exceed 10% opacity as a six-minute average.

Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year

PM<sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year

Sulfur dioxide (SO<sub>2</sub>) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.

Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.

Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.

Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.

Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year

Oxides of nitrogen (NO<sub>x</sub>) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year

Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).

The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).

The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).

See I.2.b.

See I.2.b.

See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

- 1. This emissions unit shall burn only landfill gas.
- 2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
- 3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
- 4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
- 5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

**Issued**

Emissions Unit ID: P001

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

**V. Testing Requirements**

## 1. Emission Testing Requirement

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P001

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

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NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/MMBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 MMbtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

Emissions Unit ID: P001

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

**2.a** None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

Lorain  
PTI A

Emissions Unit ID: P002

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**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P002 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	OAC rule 3745-31-05 (A)(3)  40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20  40 CFR Part 60, Subpart WWW  OAC rule 3745-17-11 (B)(5)  OAC rule 3745-17-07 (A)

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	See I.2.b.
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

- 1. This emissions unit shall burn only landfill gas.
- 2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
- 3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
- 4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
- 5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

**Issued: To be entered upon final issuance**

- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P002

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P002

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

**Lorain  
PTI A**

Emissions Unit ID: P002

**Issued: To be entered upon final issuance**

NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

Emissions Unit ID: P002

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

**2.a** None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

39

**Lorain**

**PTI A**

**Issued: To be entered upon final issuance**

Emissions Unit ID: P002

Lorain  
PTI A

Emissions Unit ID: P003

Issued: To be entered upon final issuance

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P003 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	<p>OAC rule 3745-31-05 (A)(3)</p> <p>40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20</p> <p>40 CFR Part 60, Subpart WWW</p> <p>OAC rule 3745-17-11 (B)(5)</p> <p>OAC rule 3745-17-07 (A)</p>

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NOx) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	See I.2.b.
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

1. This emissions unit shall burn only landfill gas.
2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P003

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## V. Testing Requirements

### 1. Emission Testing Requirement

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P003

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

**Lorain  
PTI A**

Emissions Unit ID: P003

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NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

**Lorain County Landfill LFG Power Station**

PTI Application: 02-17062

Issued

Facility ID: 0247100968

Emissions Unit ID: P003

**B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P003 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

49

**Lorain**

**PTI A**

**Issued: To be entered upon final issuance**

Emissions Unit ID: P003

**Lorain  
PTI A**

Emissions Unit ID: P004

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**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P004 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	OAC rule 3745-31-05 (A)(3)  40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20  40 CFR Part 60, Subpart WWW  OAC rule 3745-17-11 (B)(5)  OAC rule 3745-17-07 (A)

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	See I.2.b.
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

1. This emissions unit shall burn only landfill gas.
2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P004

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P004

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

**Lorain****PTI A**

Emissions Unit ID: P004

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NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

**B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P004 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

59

**Lorain**

**PTI A**

**Issued: To be entered upon final issuance**

Emissions Unit ID: P004

Lorain

PTI A

Emissions Unit ID: P005

**Issued: To be entered upon final issuance****Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P005 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	<p>OAC rule 3745-31-05 (A)(3)</p> <p>40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20</p> <p>40 CFR Part 60, Subpart WWW</p> <p>OAC rule 3745-17-11 (B)(5)</p> <p>OAC rule 3745-17-07 (A)</p>

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b. See I.2.b. See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

1. This emissions unit shall burn only landfill gas.
2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P005

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P005

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

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NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

Emissions Unit ID: P005

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P005 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

**2.a** None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

69

**Lorain**

**PTI A**

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Emissions Unit ID: P005

Lorain  
PTI A

Emissions Unit ID: P006

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P006 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	<p>OAC rule 3745-31-05 (A)(3)</p> <p>40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20</p> <p>40 CFR Part 60, Subpart WWW</p> <p>OAC rule 3745-17-11 (B)(5)</p> <p>OAC rule 3745-17-07 (A)</p>

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b. See I.2.b. See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

1. This emissions unit shall burn only landfill gas.
2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P006

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P006

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

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NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P006 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

79

**Lorain**

**PTI A**

**Issued: To be entered upon final issuance**

Emissions Unit ID: P006

Lorain

PTI A

Emissions Unit ID: P007

**Issued: To be entered upon final issuance****Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P007 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	<p>OAC rule 3745-31-05 (A)(3)</p> <p>40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20</p> <p>40 CFR Part 60, Subpart WWW</p> <p>OAC rule 3745-17-11 (B)(5)</p> <p>OAC rule 3745-17-07 (A)</p>

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	See I.2.b.
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

- 1. This emissions unit shall burn only landfill gas.
- 2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
- 3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
- 4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
- 5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P007

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P007

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

**Lorain  
PTI A**

Emissions Unit ID: P007

**Issued: To be entered upon final issuance**

NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

**B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P007 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

**2.a** None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

89

**Lorain**

**PTI A**

**Issued: To be entered upon final issuance**

Emissions Unit ID: P007

**Lorain  
PTI A**

Emissions Unit ID: P008

**Issued: To be entered upon final issuance**

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P008 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	OAC rule 3745-31-05 (A)(3)  40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through -20  40 CFR Part 60, Subpart WWW  OAC rule 3745-17-11 (B)(5)  OAC rule 3745-17-07 (A)

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	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-18-06	Visible emissions shall not exceed 10% opacity as a six-minute average.	Oxides of nitrogen (NO <sub>x</sub> ) emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year
OAC rule 3745-21-08(B)	Particulate emissions (PE) shall not exceed 0.87 pound per hour, nor 3.8 tons per year	Non-methane organic compound (NMOC) emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.
OAC rule 3745-21-07(B)	PM <sub>10</sub> emissions shall not exceed 0.37 pound per hour, nor 1.63 tons per year	
OAC rule 3745-23-06(B)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Organic compound (OC) emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Hydrogen chloride (HCl) emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3).
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 52, Section 52.21, and OAC rules 3745-31-10 through -20.	See I.2.b.
	Compliance with this rule also includes compliance with the requirements of 40 CFR Part 60, Subpart WWW.	See I.2.b.
	Carbon monoxide (CO) emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year	See I.2.b.

**2. Additional Terms and Conditions**

- 2.a** The internal combustion engine shall operate using lean burn technology.
- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) and the "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08(B) and 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit-to-install (PTI).
- 2.c** This internal combustion engine is one of eight (8) internal combustion engines being permitted under this PTI.

**II. Operational Restrictions**

- 1. This emissions unit shall burn only landfill gas.
- 2. The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications a device at the inlet to the internal combustion engine which completely shuts off gas flow to the internal combustion engine when the internal combustion engine is not operating.
- 3. When the internal combustion engine is not operating, the landfill gas shall be diverted to the existing enclosed combustor at the Lorain County Landfill or to an internal combustion engine that is operating. Pursuant to Lorain County Landfill's (facility ID number 02-47-00-0760) pending PTI, application number 02-17061, when the internal combustion engine is not operating, the landfill gas shall be diverted to the open flare which will replace the enclosed combustor that is to be installed pursuant to the PTI application, or to an internal combustion engine that is operating.
- 4. The minimum allowable temperature of the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed minimum allowable temperature has been established as 345°C (653°F).
- 5. The allowable gas flow rate to the internal combustion engine's combustion chamber shall be determined during the most recent compliance test. Currently, the assumed maximum allowable gas flow rate has been established as 508 standard cubic feet per minute (SCFM, 70°F and 1 atmosphere) based on a landfill gas methane content of 49%.

**III. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving each emissions unit. The presence or absence of any visible emissions shall be noted in an operations log for each unit. If visible emissions are observed, the permittee shall also note the following in the operations log:

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- a. the color of the emissions;
  - b. the cause of the visible emissions;
  - c. the total duration of any visible emissions incident; and,
  - d. any corrective actions taken to eliminate the visible emissions.
2. In order to demonstrate ongoing compliance with the requirement to reduce NMOC emissions by 98 weight-percent or reduce the outlet NMOC emissions to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen, the permittee shall:
- a. install, calibrate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater.
  - b. install, calibrate, and maintain a device that records gas flow to or bypass of the control device. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.
4. The permittee shall collect and record each day all 3-hour blocks of time during which the average combustion chamber temperature within the internal combustion engine was less than the allowable minimum operating temperature as established during the most recent compliance test.
5. The permittee shall collect and record each day all 3-hour blocks of time during which the average landfill gas flow rate to the internal combustion engine exceeds the maximum allowable gas flow rate as established during the most recent compliance test.
6. The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

**IV. Reporting Requirements**

1. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the stack serving the emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
2. The permittee shall submit deviation reports which identify the date(s) and duration the gas flow

Emissions Unit ID: P008

rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit deviation reports which identify the date(s) and duration the combustion chamber temperature of the internal combustion engine did not meet the minimum temperature requirements, as established during the most recent compliance stack test, as a three-hour average. These reports shall be submitted to the Northeast District Office of Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.
4. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than landfill gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
5. Any breakdown or malfunction resulting in the emission of raw landfill gas emissions to the atmosphere shall be reported by phone to the Northeast District Office of Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions to the atmosphere. A summary of the breakdown or malfunction, including the date(s) and time(s) and the measure(s) taken to correct the problem shall be included in the semi-annual deviation report.

## **V. Testing Requirements**

### **1. Emission Testing Requirement**

The permittee shall conduct, or have conducted, emissions testing for this emissions unit in accordance with the following requirements:

- a. the emission testing shall be conducted in accordance with the Facility-wide term II.A.1 of this permit;
- b. the emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for particulate, nitrous oxides (NO<sub>x</sub>), carbon monoxide(CO), organic compounds (OC), and hydrogen chloride (HCl);
- c. the emission testing shall be conducted to demonstrate compliance with either the removal of 98 weight-percent of NMOC or the reduction of the outlet concentration of NMOC to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen;
- d. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): particulate - Method 5, NO<sub>x</sub> - Method 7 or 7E, CO - Method 10, HCl - Method 26 or 26A, OC - Method 25 or 25A;
- e. upon request, emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for sulfur dioxide (SO<sub>2</sub>), by employing test method 6C; and

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- f. the test(s) shall be conducted while the emissions unit is operating at or near maximum capacity, unless otherwise specified or approved by the Ohio EPA, Northeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of Ohio EPA. 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 the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Northeast District Office 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.

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 to the Ohio EPA, Northeast District Office 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, Northeast District Office.

2. Compliance with the emission limitation(s) established in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation:  
OC emissions shall not exceed 0.68 pound per hour, nor 3.0 tons per year.

Applicable Compliance Method:

Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).

- b. Emission Limitation:  
Visible emissions shall not exceed 10% opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be demonstrated by using 40 CFR, Part 60, Appendix A, Method 9.

Emissions Unit ID: P008

- c. Emission Limitation:  
PE shall not exceed 0.87 pound per hour, nor 3.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- d. Emission Limitation:  
NO<sub>x</sub> emissions shall not exceed 5.88 pounds per hour, nor 25.8 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- e. Emission Limitation:  
CO emissions shall not exceed 9.76 pounds per hour, nor 42.75 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- f. Emission Limitation:  
SO<sub>2</sub> emissions shall not exceed 0.20 pound per hour, nor 0.9 ton per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- g. Emission Limitation:  
HCl emissions shall not exceed 0.28 pound per hour, nor 1.24 tons per year.
- Applicable Compliance Method:  
Compliance with the hourly emission limitation shall be determined in accordance with the performance test requirement. Compliance with the annual limitation is based on the hourly emission rate multiplied by 8,760 (hours per year) and divided by 2,000 (pounds per ton).
- h. Emission Limitation:

**Lorain  
PTI A**

Emissions Unit ID: P008

**Issued: To be entered upon final issuance**

NMOC emissions shall be reduced by 98 weight-percent or the outlet NMOC emissions shall be reduced to less than 20 parts per million by volume, dry basis (ppmvd) as hexane at 3 percent oxygen.

Applicable Compliance Method:

Compliance with the control efficiency limitation shall be determined in accordance with the performance test requirement of section V.1.

**VI. Miscellaneous Requirements**

1. The equivalent pound per million Btu (lb/mmBtu) value is determined by multiplying the short term lb/hr emission limitation and dividing it by the engine size (14 mmBtu/hr).
2. The terms and conditions listed in this permit to install shall supercede all the air pollution control requirements for this emission unit contained in permit to install 02-14092 as issued on December 19, 2000.

**Lorain County Landfill LFG Power Station**

PTI Application: 02-17062

Issued

Facility ID: 0247100968

Emissions Unit ID: P008

**B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P008 - 1400 bkW (14.0 million Btu/hr) Deutz TBG 620 V16 K Internal combustion engine #1 to produce electricity from landfill gas. Using lean burn technology to meet best available control technology (BACT) requirements.	None.	None.

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Recordkeeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.