Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

7/19/2011

Certified Mail

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

Mr. Mike Dae
Lorain County LFG Power Station
16360 Park Ten Place, Suite 218
Houston, TX 77084

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0247100968
Permit Number: P0107089
Permit Type: Initial Installation
County: Lorain

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of 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 permit. A public notice will appear in the Ohio EPA Weekly Review and the local newspaper, The Chronicle Telegram. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page,www.epa.ohio.gov/dapc by clicking the "Issued Air Pollution Control Permits" link. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall
Permit Review/Development Section
Ohio EPA, DAPC
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

and

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)425-9171.

Sincerely,

Michael W. Ahern

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

Cc: U.S. EPA Region 5 *-Via E-Mail Notification*
Ohio EPA-NEDO; Canada

Permit Strategy Write-Up

1. Check all that apply:

   Synthetic Minor Determination

   Netting Determination

2. Source Description:
   This permit is for the installation of ten (10) Caterpillar G3520C (2,233 hp) Internal Combustion Engines that will combust landfill gas (LFG) to produce energy.

   Also, a 6.0 mmBtu/hr thermal oxidizer is being installed (part of the LFG treatment system). LFG is passed through a treatment system (compression, dewatering, and filtration) which consists of a vessel that contains media that scrubs the LFG to remove siloxanes. The media is restored by passing warm LFG (cleansing LFG) through the filter. The cleansing LFG is then combusted in the thermal oxidizer.

3. Facility Emissions and Attainment Status: Existing facility permits allow the following:

	EUs	NO_x	CO	SOx	PM_{10}	PE	OC	VOC	HCl
02-14092 02-17062 02-19298 P0104591	P001 - P008	206.4	342	7.2	30.4			24	9.92
P0104754	P009	< 10 (1.8)	< 10 (3.59)	< 10 (2.37)	< 10 (0.21)			< 10 (0.07)	< 10
Total		208.2	345.59	9.57	30.61			24.07	9.92

Existing CO emissions exceed 250 TPY. Therefore, PSD needs to be considered. Per Engineering Guide (EG) 69 if proposed CO emissions exceed 100 TPY (proposed CO - 732.5 TPY), PSD is triggered. PSD modeling needs to be performed and either a BACT study (for attainment areas) or a LAER study (for non-attainment areas). Since Lorain County is an attainment county, a BACT Analysis must be submitted for CO.

Existing PM_{10} emissions do not exceed 250 TPY. But since the facility is a major facility (more than 250 TPY of any one pollutant - CO), and proposed PM_{10} emissions exceed 15 TPY (21.5 TPY) a PSD review needs to be performed, per EG 69.

Existing NO_x emissions do not exceed 250 TPY. But since the facility is a major facility (more than 250 TPY of any one pollutant - CO), and proposed NO_x emissions exceed 40 TPY (129.3 TPY) a PSD review needs to be performed, per EG 69.

A Review of the BACT Clearinghouse

VT-0029 Caterpillar G3520C LE (1600 kW) (CO - 2.75 g/hp-hr)
ME-0036 10.8 mmBtu/hr (CO - 2.75 g/hp-hr) (NO_x- 1.94 #/hr) (PM - 0.05 #/mmBtu)
NH-0014 1600 kW w/ treatment (CO - 2.75 g/hp-hr) (NO_x- 0.5 g/hp-hr) (PM_{10} - 0.1 g/hp-hr)
FL-0291 1600 kW (CO - 2.75 g/hp-hr) (NO_x- 0.6 g/hp-hr) (PM_{10} - 0.24 g/hp-hr)
FL-0290 1600kW (CO - 2.75 g/hp-hr) (NO_x- 0.6 g/hp-hr) (PM_{10} - 0.24 g/hp-hr)
NJ-0069 1000kW Jenbacher (CO - 2.53 g/hp-hr) (NO_x- 0.53 g/hp-hr) (PM_{10} - 0.58 lb/hr)
NJ-0068 Caterpillar 2233bhp (1600kW) (CO - 2.75 g/hp-hr) (NO_x- 0.5 g/hp-hr) (PM_{10} - 0.2 g/hp-hr)
NJ-0067 1500kW Jenbacher (CO - 2.5 g/hp-hr) (NO_x- 0.6 g/hp-hr) (PM_{10} - 0.75 lb/hr)
FL-0289 1600kW (CO - 2.75 g/hp-hr) (NO_x- 0.6 g/hp-hr) (PM_{10} - 0.24 g/hp-hr)
RI-0022 Caterpillar 3520C(2229 hp) (CO - 2.75 g/hp-hr) (NO_x- 0.5 g/hp-hr) (PM_{10} - 0.1 g/hp-hr)
VT-0019 Caterpillar G3520C (2221 hp)(CO - 2.75 g/hp-hr) (NO_x - 0.5 g/hp-hr)
TX-0495 CaterpillarG3520C(2172 hp) (CO - 13.41 lb/hr) (NO_x- 2.87 lb/hr) (PM_{10} - 0.71 lb/hr)

4. Source Emissions:

Engine Emission Factors are as follows:
NO_x - 0.5 grams/bhp-hr (BACT Clearinghouse) - 2.46 lb/hr, 10.78 TPY
CO - 2.75 grams/bhp-hr (BACT Clearinghouse) - 13.53 lb/hr, 59.26 TPY
OC - 5.84 grams/bhp-hr (manufacturer) - 28.72 lb/hr; 125.79 TPY
PM_{10} - 0.1 grams/bhp-hr (BACT Clearinghouse/manufacturer) - 0.49 lb/hr; 2.15 TPY
SO_2 - 46.9 ppmv (AP-42) - 0.28 lb/hr, 1.23 TPY
VOC - 0.82 lb/hr, 3.59 TPY
HCl - 0.36 lb/hr, 1.58 TPY
NMOC - outlet concentration of 20 ppmv with 4307 cfm flow & 9% oxygen

TOX Emission Factors are as follows:
NO_x - 0.08 lb/mmBtu (manufacturer) - 0.48 lb/hr, 2.10 TPY
CO - 0.2 lb/mmBtu (manufacturer) - 1.2 lb/hr, 5.26 TPY
PM_{10} - 0.001 lb/hr/dscfm methane (manufacturer) - 0.1 lb/hr, 0.44 TPY
SO_2 - 7.786 lb/mmscf (manufacturer) - 0.09 lb/hr, 0.40 TPY
OC - 98% reduction (manufacturer)
VOC - 98% reduction (manufacturer) - 0.08 lb/hr, 0.35 TPY
NMOC - 98% reduction (manufacturer) - 0.08 lb/hr, 0.35 TPY

Total Proposed emissions from this permit
NO_x - Engines + TOX = 107.80 TPY + 2.10 TPY = 109.9 TPY
CO - Engines + TOX = 592.6 TPY + 5.26 TPY = 597.86 TPY
OC - Engines + TOX = 1257.9 TPY
PM_{10} - Engines + TOX = 21.5 TPY + 0.44 TPY = 21.94 TPY
SO_2 - Engines + TOX = 12.3 TPY + 0.40 TPY = 12.7 TPY
VOC - Engines + TOX = 35.9 TPY + 0.35 TPY = 36.25 TPY
HCl - Engines + TOX = 15.8 TPY + 0.48 TPY = 16.28 TPY
NMOC - Engines + TOX = 33.2 TPY + 0.35 TPY = 33.55 TPY

5. Conclusion:

Issue the Permit

6. Please provide additional notes or comments as necessary:

   In the application, the facility proposed a not to exceed (NTE) emission limitation for CO. The facility claimed CO emissions increase over time do to the degradation of the engine. While 2.75 g/hp-hr is the manufacturer emission factor, in practice, the emission factor is not sustainable (claim by the facility).

   For EU's P010 - P019 paragraph b)(2)b. - I did not include PM emissions in this paragraph (even though PTE emissions are less than 10 TPY for each engine) because this permit is PSD for that pollutant. Likewise for EU P020 - I did not include CO, NO_x and PM for the same reason.

7. Total Permit Allowable Emissions Summary (for informational purposes only):

Pollutant	Tons Per Year
NO_x	109.9
CO	597.9
OC	1257.9
PM_{10}	21.9
SO_2	12.7
VOC	36.3
HCl	16.3
NMOC	33.6*

* Not included in "Applicable Emissions Limitations/Control Measures" table because facility may operate whereas NMOC emissions are not regulated (treatment of the LFG). If the facility chooses to bypass the treatment system, this would be applicable.

STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS FOR THE LORAIN COUNTY LANDFILL GAS POWER STATION LOCATED IN LORAIN COUNTY, OHIO
PTI P0107089
JUNE 27, 2011

Ohio Environmental Protection Agency
Division of Air Pollution Control
Lazarus Government Center
50 West Town St., Suite 700
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 stationary sources, which are facilities 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 stationarysource is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous netincrease in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within this five- or ten-year period are considered to be contemporaneous. In addition, Ohio has incorporated the PSD and NSR requirements by rule under OAC 3745-31, and currently has a program that is fully approved by USEPA.

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 stationary 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 stationary 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 stationary 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 stationary 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 stationary 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 stationary 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 stationary 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 Lorain County Landfill Gas Power Station is owned and operated by Energy Developments, Inc. and is located at 43502 Oberline-Elyria Rd., Oberline, Ohio in Lorain County. This facility is located on the Lorain County Landfill property which is owned and operated by Republic Services.

This area is classified as attainment for all criteria pollutants, including total suspended particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC) and lead (Pb).

Facility Description

EDI currently operates 8 landfill gas-fired engine generators to produce electricity from the landfill gas. Since the landfill is capable of producing more landfill gas than can be utilized in the 8 engines already installed, EDI is proposing to install 10 additional engine generators and 1 thermal oxidizer to utilize the excess gas and decrease the amount of landfill gas being sent to the flares.

The new internal combustion engines will be located in the southeastern corner of the Lorain County Landfill adjacent to the landfill's current power station (Lorain I) and flares. They will be fueled by landfill gas diverted from the existing flares and will power 10 electrical generators that will produce up to 16.0 MW (1.6 MW each) of electricity, which will be delivered to the electric utility grid for distribution. The thermal oxidizer will be used to combust the portion of the landfill gas used to clean the filter media used in the pretreatment system.

The proposed equipment will operate continuously 24 hours per day, 7 days per week and 52 weeks per year with scheduled and unscheduled shutdowns for maintenance and repairs.

Emissions Unit List:

EU#	Description
P010	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P011	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P012	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P013	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P014	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P015	2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C

P016 2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P017 2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P018 2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C
P019 2,233 hp(15.75 mmBtu/hr)Caterpiller Engine Model #G3520C

New Source Review (NSR)/PSD Applicability

The Lorain County Landfill Gas Power Station (Lorain II LFGTE) meets the definition for a major stationary source because the facility has the potential to emit greater than 250 tons per year of nitrogen oxides and carbon monoxide. The facility will be located in an area designated as attainment for particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, sulfuric acid mist and lead.

As a major stationary source, this facility must obtain a Prevention of Significant Deterioration permit to install (PSD PTI) and must comply with the BACT requirements as specified in OAC rules 3745-31-11 through 20 for each emissions unit that emits any regulated air pollutant(s) above the significant levels specified in OAC rule 3745-31-01(MMMMM).

TABLE 1

PRELIMINARY POLLUTANT EMISSION RATES

Pollutant	Allowable Emission Rate (in tpy)	Emission Rate Increase (in tpy)	Significant PSD Threshold (in tpy)
Carbon Monoxide	738.38	738.38	100
Nitrogen Oxides	131.47	131.47	40
Sulfur Dioxide	12.47	12.47	40
PM_{10}	22.06	22.06	15
VOC	37.98	37.98	40

Applicability of 40 CFR Part 60 (NSPS)

40 CFR Part 60, Subpart WWW – Municipal Solid Waste Landfills
40 CFR Part 60, Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines

Applicability of 40 CFR Part 63 (MACT)

40 CFR Part 63, Subpart AAAA - Municipal Solid Waste Landfills
40 CFR Part 63, Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines

Control Technology Review (BACT)

The Lorain County Landfill Gas Power Station has been classified as a major stationary source that emits CO, NO_x and PM_{10} above the significant levels specified in OAC rule 3745-31-01(MMMMM)(1). The facility must comply with the BACT requirements for the pollutants listed above.

The requirement to conduct a BACT analysis and determination is set forth in section 165(a)(4) of the Clean Air Act (Act), in federal regulations at 40 CFR Part 52.21.(j) and also in OAC rules 3745-31-15(C) and 3745-31-01(S). The BACT requirement is defined as:

"... an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the director, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such major stationary source or major modification through application of production processes or available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant that would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63. If the director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, my be approved by the director instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation and shall provide for compliance by means which achieve equivalent results."

The BACT process was further formalized in a memorandum by USEPA on December 1, 1987 and in the draft New Source Review Workshop Manual (EPA 1990b) issued on March 15, 1990, by introducing a "top-down" concept for BACT analysis. The top-down process requires that all available control technologies be ranked in descending order of control effectiveness. The BACT process first examines the most stringent - or "top"-alternative. That alternative is established as BACTunless it is demonstrated that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not applicable. If the most stringent technology is eliminated, then the next most stringent alternative is considered, and this process is continued until an acceptable BACT is selected.

The objective of the BACT analysis is to conduct pollutant-specific control technology evaluation per USEPA requirements. The BACT evaluation steps consist of:

Step 1: identify all control technologies;

Step 2: eliminate technically infeasible options;

Step 3: rank remaining control technologies by control effectiveness;

Step 4: evaluate most effective controls and document results; and

Step 5: select the most effective control based on energy, environmental and economic impacts (generally the feasible technology that is also considered to be cost effective)

BACT Determination:

Reduction of CO emissions from internal combustion engines burning landfill gas has been attempted using an oxidation catalyst, but this has ultimately proven unsuccessful and not cost effective. The best method for reducing CO emissions is good combustion practices. The best technique for controlling CO emissions and maximizing combustion efficiency of the engines is the pretreatment of the landfill gas through water removal and filtering of particulate, i.e., siloxanes to prevent deterioration of engine performance.

The selection of BACT for emissions units P010 and P019 was determined to be the following:

A search of the RACT/BACT/LAER database has identified reasonably restrictive CO, NO_x, and PM_{10} emission limitations of 2.75 g/bhp-hr, 0.5 g/bhp-hr and 0.1 g/bhp-hr, respectively.

Prior to combustion, the landfill gas shall be pretreated by compressing, filtering for particles up to 10 microns in diameter and dewatering.

See specific details of the BACT analysis in the air permit-to-install application.

Modeling Summary:

SCS Engineers and LNM Consultinghas submitted air dispersion modeling for the proposed landfill gas to energy expansion project on behalf of EDI – Lorain County LFG Power Station. The Lorain County LFG Power Station used the AERMOD (version 09292) air dispersion model to show compliance for sulfur dioxide (SO_2), Particulate Matter less than 10 micrograms (PM_{10}), Carbon Monoxide (CO) and Nitrogen Oxides (NO_x) in accordance to the Ohio Modeling Standards and Significant Emission Rates. Both PSD and NAAQS impacts were evaluated. Modeling was also performed for Hydrogen Chloride and Formaldehyde and compared to the respective Maximum Allowable Ground Level Concentration (MAGLC).

Modeling Information

The Lorain County LFG Power Station is located in Oberlin, Lorain County, Ohio on property owned by the Lorain County Landfill. The area immediately surrounding the Lorain County LFG Power Station is relatively remote from populated areas. Nearby populated areas include Oberlin, approximately 2 kilometers (km) to the southwest; South Amherst, 8 km to the northwest; Elyria, 9 km to the northeast and Grafton, 10 km to the east.

When modeling, all concentrations were computed in micrograms per cubic meter ($\mu g/m^3$). No deposition or depletion was modeled for this case. The AERMOD regulatory default option was selected in the control parameter.

Several receptor grids were placed around the facility for this modeling analysis. Receptors were spaced 25 meters along the fenceline of the Lorain County Landfill property. Fine grid receptors were spaced at 50 meter intervals out to 500 meters from the boundary. Medium grid receptors were spaced at 100 meter intervals out to 2,000 meters from the boundary. Additional medium grid receptors were spaced at 250 meter intervals out to 5,000 meters from the boundary and coarse grid receptors were spaced at 500 meter intervals out to the edge of the Significant Impact Area (SIA).

Five years of meteorological data must be used in accordance with the Engineering Guidelines: #69 Guideline on Air Quality Models. Surface observations from the Cleveland Hopkins International Airport (National Weather Service Station Number 14820) and upper air observations from Buffalo, New York (National Weather Service Station Number 14733) from 2001-2005 were used in this model. The National Weather Service data

was determined to be representative of the geographical surroundings of the Lorain County LFG Power Station.

Secondary Impacts

The Lorain County LFG Power Station 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.

Results

After reviewing the air quality impact modeling for the Lorain County LFG Power Station proposed landfill gas to energy expansion project, Ohio EPA has found no violations of the National Ambient Air Quality Standards or Prevention of Significant Deterioration. Ohio EPA is in agreement with Table 20 Comparison of Modeling Results with the NAAQS and OAAQS. Ohio EPA is also in agreement with Table 21 Comparison of Modeling Results with the PSD Increment. Ohio EPA also has found no violations of the MAGLC for Hydrogen Chloride and Formaldehyde. Ohio EPA is also in agreement with Table 22 Modeling Results for Hydrogen Chloride and Formaldehyde. Modeling shows compliance with all applicable air quality standards.

Conclusions

Based upon the review of the permit to install application and the supporting documentation provided by the applicant, the Ohio EPA staff has determined the installation will comply with all applicable State and Federal environmental regulations and that the requirements for attainment area review are satisfied. Therefore, the Ohio EPA staff recommends that a permit to install be issued to the Lorain County LFG Power Station for the installation of an additional 10 engine generators and 1 thermal oxidizer.

PUBLIC NOTICE
Issuance of Draft Air Pollution Permit-To-Install
Lorain County LFG Power Station

Issue Date: 7/19/2011
Permit Number: P0107089
Permit Type: Initial Installation
Permit Description: Installation of ten (10) Internal Combustion Engines (Caterpillar G3520C - 2,233 hp) to burn landfill gas (LFG) to produce electricity. Also includes a 6.0 mmBtu/hr thermal oxidizer to assist in the existing LFG treatment system.
Facility ID: 0247100968
Facility Location: Lorain County LFG Power Station
43502 Oberlin-Elyria Road,
Oberlin, OH 44436
Facility Description: Other Electric Power Generation

The Director of the Ohio Environmental Protection Agency, 50 West Town Street, Columbus Ohio, has issued a draft action of an air pollution control permit-to-install (PTI) for an air contaminant source at the location identified above on the date indicated. Installation of the air contaminant source may proceed upon final issuance of the PTI. Comments concerning this draft action, or a request for a public meeting, must be sent in writing no later than thirty (30) days from the date this notice is published. All comments, questions, requests for permit applications or other pertinent documentation, and correspondence concerning this action must be directed to Erik Bewley at Ohio EPA DAPC, Northeast District Office, 2110 East Aurora Road, Twinsburg, OH 44087 or (330)425-9171. The permit can be downloaded from the Web page: www.epa.ohio.gov/dapc

Ohio Environmental Protection Agency

DRAFT

Division of Air Pollution Control
Permit-to-Install
for
Lorain County LFG Power Station

Facility ID:	0247100968
Permit Number:	P0107089
Permit Type:	Initial Installation
Issued:	7/19/2011
Effective:	To be entered upon final issuance

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install
for
Lorain County LFG Power Station

Table of Contents

Authorization

Facility ID: 0247100968
Facility Description: Landfill gas Power generation station
Application Number(s): A0040440, A0040756, A0041838
Permit Number: P0107089
Permit Description: Installation of ten (10) Internal Combustion Engines (Caterpillar G3520C - 2,233 hp) to burn landfill gas (LFG) to produce electricity. Also includes a 6.0 mmBtu/hr thermal oxidizer to assist in the existing LFG treatment system.
Permit Type: Initial Installation
Permit Fee: $450.00*DO NOT send payment at this time, subject to change before final issuance*
Issue Date: 7/19/2011
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

Lorain County LFG Power Station
43502 Oberlin-Elyria Road
Oberlin, OH 44436

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

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

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)425-9171

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Scott J. Nally
Director

Authorization (continued)

Permit Number: P0107089
Permit Description: Installation of ten (10) Internal Combustion Engines (Caterpillar G3520C - 2,233 hp) to burn landfill gas (LFG) to produce electricity. Also includes a 6.0 mmBtu/hr thermal oxidizer to assist in the existing LFG treatment system.

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

Emissions Unit ID:	**P020**
Company Equipment ID:	Thermal Oxidizer #2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: IC Engines #9-#18

Emissions Unit ID:	**P010**
Company Equipment ID:	IC Engine #9
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P011**
Company Equipment ID:	IC Engine #10
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P012**
Company Equipment ID:	IC Engine #11
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P013**
Company Equipment ID:	IC Engine #12
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P014**
Company Equipment ID:	IC Engine #13
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P015**
Company Equipment ID:	IC Engine #14
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P016**
Company Equipment ID:	IC Engine #15
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P017**
Company Equipment ID:	IC Engine #16
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P018**
Company Equipment ID:	IC Engine #17
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Emissions Unit ID:	**P019**
Company Equipment ID:	IC Engine #18
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements

(3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

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

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

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

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, andreportingrequirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

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

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

6. Compliance Requirements

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

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

c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

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

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

d) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

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

8. Air Pollution Nuisance

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

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have

been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

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

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as “permanently shut down” in Ohio EPA’s “Air Services” along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

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

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

12. Permit-To-Operate Application

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

13. Construction Compliance Certification

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

a) Completion of initial installation date shall be enteredupon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

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

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

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

16. Fees

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

17. Permit Transfers

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

18. Risk Management Plans

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

19. Title IV Provisions

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

B. Facility-Wide Terms and Conditions

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

   a) None.

C. Emissions Unit Terms and Conditions

1. P010 - P019 IC Engines #9 - #18

Operations, Property and/or Equipment Description:

EU ID	Operations, Property, and/or Equipment Description
P010	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #9 to produce electricity from landfill gas. Using lean burn technology.
P011	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #10 to produce electricity from landfill gas. Using lean burn technology.
P012	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #11 to produce electricity from landfill gas. Using lean burn technology.
P013	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #12 to produce electricity from landfill gas. Using lean burn technology.
P014	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #13 to produce electricity from landfill gas. Using lean burn technology.
P015	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #14 to produce electricity from landfill gas. Using lean burn technology.
P016	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #15 to produce electricity from landfill gas. Using lean burn technology.
P017	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #16 to produce electricity from landfill gas. Using lean burn technology.
P018	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #17 to produce electricity from landfill gas. Using lean burn technology.
P019	2233 hp(15.75 mmBtu/hr) Caterpillar G3520 Reciprocating Internal Combustion Engine #18 to produce electricity from landfill gas. Using lean burn technology.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(11), d)(12), d)(13), d)(14) and e)(4)

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001	Visible particulate emissions shall not exceed 10% opacity as a 6-minute average. Sulfur dioxide (SO_2) emissions shall not exceed 0.28 pound per hour and 1.23 tons per year.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Volatile organic compound (VOC) emissions shall not exceed 0.82 pound per hour and 3.59 tons per year. Hydrogen chloride (HCl) emissions shall not exceed 0.36 pound per hour and 1.58 tons per year. Organic compound (OC) emissions shall not exceed 5.84 grams per brake horsepower hour, 28.72 pounds per hour and 125.79 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. See b)(2)a.
b.	OAC rule 3745-31-05(A)(3), as effective 12/1/2006	See b(2)b.
c.	40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through 20	Carbon monoxide (CO) emissions shall not exceed 2.75 grams per brake horsepower hour, 13.53 pounds per hour and 59.26 tons per year. Nitrogen oxides (NO_x) emissions shall not exceed 0.5 gram per brake horsepower hour, 2.46 pounds per hour and 10.78 tons per year. Particulate emissions (PE)/particulate less than 10 microns in diameter (PM_{10}) emissions shall not exceed 0.1 gram per brake horsepower hour, 0.49 pound per hour and 2.15 tons per year.
d.	40 CFR Part 60, Subpart WWW	See b)(2)c.
e.	OAC rule 3745-17-11(B)(5)	PE shall not exceed 0.062 pound per million Btu of actual heat input.
f.	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

g.	OAC rule 3745-18-06	SO_2 emissions shall not exceed 0.5 pound per million Btu of actual heat input.
h.	40 CFR Part 60, Subpart JJJJ (40 CFR 60.4230-4248) [In accordance with 40 CFR 60.4230(a)(4)(i), this emissions unit is a landfill gas fired lean burn stationary spark ignition (SI) internal combustion engine (ICE) constructed after June 12, 2006 and manufactured after July 1, 2007 with a maximum engine power greater than or equal to 500 HP]	Emission standards for landfill gas SI-ICE manufactured after July 1, 2007 as specified in Table 1 of 40 CFR Part 60, Subpart JJJJ. NO_x emissions shall not exceed 3.0 grams per horsepower-hour or 220 ppmvd at 15% oxygen. CO emissions shall not exceed 5.0 grams per horsepower-hour or 610 ppmvd at 15% oxygen. VOC emissions shall not exceed 1.0 gram per horsepower-hour or 80 ppmvd at 15% oxygen The VOC emission limitation required by this applicable rule is less stringent than the VOC emission limitation established pursuant to OAC rule 3745-31-05(A)(3). The CO and NO_x emission limitations required by this applicable rule are less stringent than the CO and NO_x emission limitations established pursuant to OAC rules 3745-31-10 through 20
i.	40 CFR Part 63, Subpart ZZZZ	See b)(2)e.

(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.

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

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the SO_2, VOC and HCl emissions from this air contaminant source since the uncontrolled potential to emit is less than 10 tons per year.

c. Collected landfill gas shall be treated for sale or additional use per 40 CFR 60.752(b)(2)(iii)(C) or shall be routed to a control system per 40 CFR 60.752(b)(2)(iii)(B). The control system shall be designed and operated to reduce the non-methane organic compound (NMOC) emissions 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.

d. The internal combustion engine shall operate using lean burn technology.

e. In accordance with 40 CFR Part 63.6590(c) a new stationary RICE located at an area source must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart JJJJ.

f. The permittee shall comply with the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4236(b)	Installation deadlines
60.4243(b)	Compliance Requirements

c) Operational Restrictions

(1) This emissions unit shall burn only landfill gas.

(2) The permittee shall install, 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 demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the maximum allowable gas flow rate to the internal combustion engine's, based on 3-hour blocks of time, shall not be higher than the maximum gas flow rate that was established during the most recent compliance test that demonstrated compliance with the applicable requirements.

(4) The allowable gas flow rate to the internal combustion engine's combustion chambers shall not exceed 600 scfm.

(5) When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(C), the permittee has committed to compressing, filtering for particles up to 10 microns in diameter, and dewatering the landfill gas.

Dewatering shall be defined as a reduction of the dew point of the landfill gas by at least 20 degrees Fahrenheit.

(6) When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the minimum allowable average temperature of the internal combustion engine's combustion chambers, based on 3-hour blocks of time, shall not be lower than the minimum combustion temperature that was established during the most recent compliance test that demonstrated compliance with the applicable requirements.

(7) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4234	Duration of compliance with the emissions standards
60.4243(b)	Maintenance Requirements
60.4243(g)	Air-to-Fuel (ATR) controllers

d) 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:

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) The permittee shall record each day when a fuel other than landfill gas was burned in this emissions unit.

(3) The permittee shall record the dates and times when the landfill gas is treated for sale or additional use and when the internal combustion engines are operated as landfill gas control devices.

(4) The permittee shall install, calibrate and maintain a continuous device that monitors and records the temperature of the landfill gas prior to dewatering and after dewatering. When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(C), the temperature shall be monitored at all times.

(5) The permittee shall 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, for the exhaust of the internal combustion engines. When demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), the temperatures shall be monitored at all times.

(6) When attempting to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B), 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.

(7) The permittee shall install, calibrate, and maintain a device that monitors and records gas flow to or bypass of the internal combustion engines. The gas flow rate measuring device shall record the flow to the control device at least every 15 minutes.

(8) When attempting to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B), 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 exceeded the maximum allowable gas flow as established during the most recent compliance test.

(9) The permittee shall collect and record all times the flow rate to the internal combustion engine exceeded 600 scfm. The gas flow rate to the engine shall be determined by dividing the total gas flow into the treatment system(s) by the number of engines operating.

(10) The permittee shall record (daily) the operating hours of each engine.

(11) The permit to install (PTI) application for this/these emissions unit(s), P010 - P019, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

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

Toxic Contaminant: Hydrogen Chloride

TLV (mg/m3): 7.46

Maximum Hourly Emission Rate (lbs/hr): 3.71

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3.31

MAGLC (ug/m3): 177.57

The permittee, has demonstrated that emissions of hydrogen chloride, from emissions unit(s) P010 - P019, are calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

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

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and

c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

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

(13) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

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

(15) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4243(b)(2)(ii)	Keeping a maintenance plan and records of conducted maintenance
60.4245(a)	Records required

e) Reporting Requirements

(1) The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit;

b. describe any corrective actions taken to eliminate the visible particulate emissions;

c. identify the date(s) and duration the gas flow rate to the internal combustion engine exceeded the maximum gas flow rate requirements, as established during the most recent compliance stack test, as a 3-hour average;

d. identify the date(s) and duration the gas flow rate to the internal combustion engine exceeded 600 scfm;

e. when demonstrating compliance with 40 CFR 60.752 (b)(2)(iii)(C), identify the date(s) and duration when the temperature difference of the landfill gas between pre-dewatering and post-dewatering is less than 20 degrees Fahrenheit; and

f. when demonstrating compliance with 40 CFR 60.752(b)(2)(iii)(B), identify the date(s) and duration of each 3-hour block of time when the average temperature within the internal combustion engine did not meet the minimum temperature requirements.

These reports shall be submitted to the Northeast District Office of the 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 (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.

(3) 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 immediately 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.

(4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

(5) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4245(c)	Initial Notification
60.4245(d)	Performance Test Report

f) Testing Requirements

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

a. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for NO_x, CO, and VOC.

b. Unless the permittee can demonstrate that all landfill gas burned in the internal combustion engines has been compressed, filtered for particulates up to 10 microns in diameter, and dewatered since the previous compliance test, 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.

c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:

NO_x - Methods 1 through 4 and 7 or 7E of 40 CFR Part 60, Appendix A;
CO - Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A;
VOC - Methods 1 through 4 and 25 or 25A of 40 CFR, Part 60, Appendix A; and
NMOC (if required) - Methods 1 through 4 and 25 or 25C of 40 CFR Part 60, Appendix A.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

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

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

f. 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.

g. 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 limitations established in b)(1) and b)(2) of this permit shall be determined in accordance with the following methods:

a. Emission Limitation:

Visible particulate emissions shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

SO_2 emissions shall not exceed 0.28 pound per hour and 1.23 tons per year.

Applicable Compliance Method:

Compliance with the SO_2 hourly emission rate shall be demonstrated by using the following equation:

E = EF x (MW/24.45) x Flow x 60/(35.31 x 1000 x 454)

where:

E = emissions of SO_2 (pound per hour);

EF = emission factor from AP-42, Section 2.4, Municipal Solid Waste Landfills, version 10/2008 (46.9 ppmv SO_2);

MW = molecular weight of SO_2, 64.06;

24.45 = equation constant;

Flow = average flow of LFG to engine, ft^3 per minute;

60 = conversion factor, minutes per hour;

35.31 = conversion factor, ft^3 per m^3;

1000 = conversion factor, milligrams per gram; and

454 = conversion factor, grams per pound.

The tpy emission limitation was developed by multiplying the short-term allowable SO_2 emission limitation (0.28 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

VOC emissions shall not exceed 0.82 pound per hour and 3.59 tons per year.

Applicable Compliance Method:

Compliance with the VOC hourly emission limitation shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.82 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

HCl emissions shall not exceed 0.36 pound per hour and 1.58 tons per year.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 26.

The tpy emission limitation was developed by multiplying the short-term allowable HCl emission limitation (0.36 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

OC emissions shall not exceed 5.84 grams per brake horsepower hour, 28.72 pounds per hour and 125.79 tons per year.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 25.

The tpy emission limitation was developed by multiplying the short-term allowable OC emission limitation (28.72 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

CO emissions shall not exceed 2.75 grams per brake horsepower hour, 13.53 pounds per hour and 59.26 tons per year.

Applicable Compliance Method:

Compliance with the CO hourly emission and technical limitations shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable CO emission limitation (13.53 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

NO_x emissions shall not exceed 0.5 gram per brake horsepower hour, 2.46 pounds per hour and 10.78 tons per year.

Applicable Compliance Method:

Compliance with the NO_x gram per brake horsepower hour, hourly emission and technical limitations shall be demonstrated in accordance with the performance test requirement specified in f)(1).

The tpy emission limitation was developed by multiplying the short-term allowable NO_x emission limitation (2.46 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

PE/PM10 emissions shall not exceed 0.1 gram per brake horsepower hour.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5.

i. Emission Limitation:

PE/PM_{10} emissions shall not exceed 0.49 pound per hour and 2.15 tons per year.

Applicable Compliance Method:

Compliance with the PE/PM_{10} hourly emission rate shall be demonstrated by using the following equation:

E = EF x 2233/454

where:

E = emissions of PM_{10} (pound per hour);

EF = emission factor provided by manufacturer (0.1 g PM_{10}/bhphr);

2,233 = rating of engine (bhphr); and

454 = conversion factor grams per pound.

The tpy emission limitation was developed by multiplying the short-term allowable PE/PM_{10} emission limitation (0.49 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

The control system shall be designed and operated to reduce the NMOC emissions 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:

If required, compliance with the control efficiency limitation shall be demonstrated in accordance with the performance test requirement specified in f)(1)c.

Compliance with this condition is not required if all landfill gas is treated in compliance with 40 CFR 60.752(b)(2)(iii)(C).

k. Emission Limitation:

PE shall not exceed 0.062 pound per million Btu of actual heat input.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5.

l. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

m. Emission Limitation:

SO_2 emissions shall not exceed 0.5 pound per million Btu of actual heat input.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 8.

(3) The permittee shall comply with the applicable restrictions of 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4243(b)(1)	Certified engines - Compliance demonstration
60.4243(b)(2)	Non-certified engines - Compliance demonstration
60.4244	Test methods and procedures

g) Miscellaneous Requirements

(1) None.

2. P020, Thermal Oxidizer #2

Operations, Property and/or Equipment Description:

Thermal Oxidizer #2 - rated at 6 mmBtu/hr capable of burning 200scfm. Used to clean the siloxane filters.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	40 CFR Part 52, Section 52.21 and OAC rules 3745-31-10 through 20	Nitrogen Oxide (NO_x) emissions shall not exceed 0.08 pound per million Btu, 0.48 pound per hour and 2.10 tons per year. Carbon monoxide (CO) emissions shall not exceed 0.2 pound per million Btu, 1.2 pounds per hour, and 5.26 tons per year. Particulate emissions (PE)/particulates less than 10 microns in diameter (PM_{10}) shall not exceed 0.1 pound per hour and 0.44 ton per year.
b.	OAC rule 3745-31-05(A)(3) as effective 11/30/2001	Volatile organic compound (VOC) emissions shall not exceed 0.08 pound per hour and 0.35 ton per year. Sulfur dioxide (SO_2) emissions shall not exceed 0.09 pound per hour and 0.40 ton per year. Hydrogen chloride (HCl) emissions shall not exceed 0.11 pound per hour and 0.48 ton per year. Visible particulate emissions from the stack shall not exceed 10% opacity as a 6-minute average.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		The requirements established pursuant to this rule are equivalent to the requirements of OAC rules 3745-31-10 through 3745-31-20. See b)(2)a.
c.	OAC rule 3745-31-05(a)(ii), as effective 12/01/2006	See b)(2)b.
d.	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
e.	40 CFR Part 60, Subpart WWW	See c)(1).

(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirements to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.

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

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the emissions of VOC, SO_2 and HCl from this air contaminant source since the calculated annual emission rates are each less than 10 tons per year.

c. Collected landfill gas shall be treated for sale or additional use per 40 CFR 60.752(b)(2)(iii)(C) or shall be routed to a control system per 40 CFR 60.752(b)(2)(iii)(B). The control system shall be designed and operated to reduce the non-methane organic compound (NMOC) emissions 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.

c) Operational Restrictions

(1) The permittee has committed to dewatering the landfill gas (LFG) before it is processed through this emissions unit. Dewatering shall be defined as a reduction of the dew point of the LFG by at least 20 degrees Fahrenheit.

(2) All of the emissions from the siloxane filter system shall be vented to a thermal oxidizer that shall meet the operational, monitoring, and record keeping requirements of this permit.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications devices on piping to the thermal oxidizer which completely shut off gas flow to the thermal oxidizer when the thermal oxidizer is not operating.

(2) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable combustion temperature within the thermal oxidizer, during any period of time when the emissions unit controlled by the thermal oxidizer is in operation, shall not be less than 1400 degrees Fahrenheit.

(3) The permittee shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment.

a. 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. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer s recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The permittee shall collect and record the following information each day the emissions unit is in operation:

i. all time periods, except during start-up and shut-down, during which the emissions unit was in operation and the thermal oxidizer inlet temperature was below the acceptable minimum.

ii. a log (date and total time) of the downtime or bypass of the capture (collection) system (serving the thermal oxidizer) and the thermal oxidizer, and/or downtime of the monitoring equipment, when the associated emissions unit(s) was/were in operation.

b. A device that records flow to or bypass of the control device. The permittee shall either:

i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the LFG flow to the control device at least every 15 minutes; or

ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure

mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(4) The permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines.

(5) Whenever the monitored combustion temperature within the thermal oxidizer drops below the minimum operating temperature**,** the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

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

f. a description of the corrective action;

g. the date corrective action was completed;

h. the date and time the deviation ended;

i. the total period of time (in minutes) during which there was a deviation;

j. the temperature readings immediately after the corrective action was implemented; and

k. the name(s) of the personnel who performed the work.

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

The temperature range/limit is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA, Northeast District Office. The permittee may request revisions to the permitted temperature

range/limit In addition; approved revisions to the temperature range/limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of administrative modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly summaries of the following records:

a. each period of time (start time and date, and end time and date) when the average combustion temperature within the thermal oxidizer was outside of the range established in this permit;

b. any period of time (start time and date, and end time and date) when the siloxane filter system was in operation and the process emissions were not vented to the thermal oxidizer;

c. each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;

d. each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the emissions unit(s) into compliance and/or the temperature within the thermal oxidizer into compliance with the acceptable range, was determined to be necessary and was not taken; and

e. each incident of deviation described in "a" or "b" where proper records were not maintained for the investigation and/or the corrective action(s).

These quarterly reports shall be submitted by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarters.

(2) The permittee shall submit semiannual reports to the Ohio EPA Northeast District Office, which include all time periods during which LFG was combusted in the thermal oxidizer, before it was first dewatered. These reports shall be submitted by January 31, and July 31, and shall cover the records for the previous calendar six months.

(3) Any breakdown or malfunction resulting in the emission of raw LFG to the atmosphere shall be reported by telephone to the Northeast District Office of the Ohio EPA within one hour after the occurrence, or as soon as reasonably possible, and immediate remedial actions 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.

f) Testing Requirements

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

a. Emission Limitation:

NO_x emissions shall not exceed 0.08 pound per million Btu, 0.48 pound per hour and 2.10 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by using the following equation:

E = EF x flow x HV x 60/1E6

where:

E = emission rate, pound per hour;
EF = emission factor provided by manufacturer, 0.08 pound per million Btu;
flow = flow rate of landfill gas (LFG), cubic feet per minute, maximum is 200 cfm;
HV = heating value of LFG, assume 500 Btu per cf LFG;
60 = conversion factor, minutes per hour; and
1E6 = conversion factor, Btu/million Btu.

The tpy emission limitation was developed by multiplying the short-term allowable NO_x emission limitation (0.48 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitation:

CO emissions shall not exceed 0.2 pound per million Btu, 1.2 pounds per hour, and 5.26 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by using the following equation:

E = EF x flow x HV x 60/1E6

where:

E = emission rate, pound per hour;
EF = emission factor provided by manufacturer, 0.2 pound per million Btu;
flow = flow rate of landfill gas (LFG), cubic feet per minute, maximum is 200 cfm;
HV = heating value of LFG, assume 500 Btu per cf LFG;
60 = conversion factor, minutes per hour; and
1E6 = conversion factor, Btu/million Btu.

The tpy emission limitation was developed by multiplying the short-term allowable CO emission limitation (1.2 lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

PE/PM_{10} emissions shall not exceed 0.1 pound per hour and 0.44 ton per year.

Applicable Compliance Method:

Compliance shall be demonstrated by using the following equation:

E = EF x flow x MC

where:

E = emission rate, pound per hour;
EF = emission factor from manufacturer, 0.001 pound per cubic foot of methane;
flow = flow rate of landfill gas (LFG), cubic feet per minute, maximum is 200 cfm; and
MC = methane concentration of LFG, assume 50%.

The tpy emission limitation was developed by multiplying the short-term allowable PE/PM_{10} emission limitation (0.1 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

VOC emissions shall not exceed 0.08 pound per hour and 0.35 ton per year.

Applicable Compliance Method:

Compliance shall be demonstrated by using the following equation:

$E = [flow \times 60 \times MW_{lfg} \times P_{voc}/386] \times (1 - Eff)$

where:

E = emission rate, pound per hour;
flow = flow rate of landfill gas (LFG), cubic feet per minute, maximum is 200 cfm;
60 = conversion factor, minutes per hour;
MW_{lfg} = molecular weight of LFG, 30 lb/lbmole;
P_{voc} = percent of LFG that is VOC, assume 0.04%;
386 = conversion factor lbmole per cf LFG; and
Eff = destruction efficiency of thermal oxidizer, assume 98%.

The tpy emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.08 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

SO_2 emissions shall not exceed 0.09 pound per hour and 0.40 ton per year.

Applicable Compliance Method:

Compliance shall be demonstrated by using the following equation:

E = EF x flow x 60

where:

E = emission rate, pound per hour;
EF = emission factor provided by manufacturer, 7.786 pound per million cubic feet;
flow = flow rate of landfill gas, maximum is 200 cubic feet per min; and
60 = conversion factor, 60 min per hour.

The tpy emission limitation was developed by multiplying the short-term allowable SO_2 emission limitation (0.09 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

HCl emissions shall not exceed 0.11 pound per hour and 0.48 ton per year.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR, Part 60, Appendix A, Method 26.

The tpy emission limitation was developed by multiplying the short-term allowable HCl emission limitation (0.11 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

Visible particulate emissions from the stack shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

h. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

i. Emission Limitation:

The control system shall be designed and operated to reduce the non-methane organic compound (NMOC) 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:

If required, compliance with the control efficiency limitation shall be determined in accordance with Method 25 or 25C of 40 CFR, Part 60, Appendix A or alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.

Compliance with this condition is not required if all landfill gas is treated in compliance with 40 CFR 60.752(b)(2)(iii)(C).

g) Miscellaneous Requirements

(1) None.